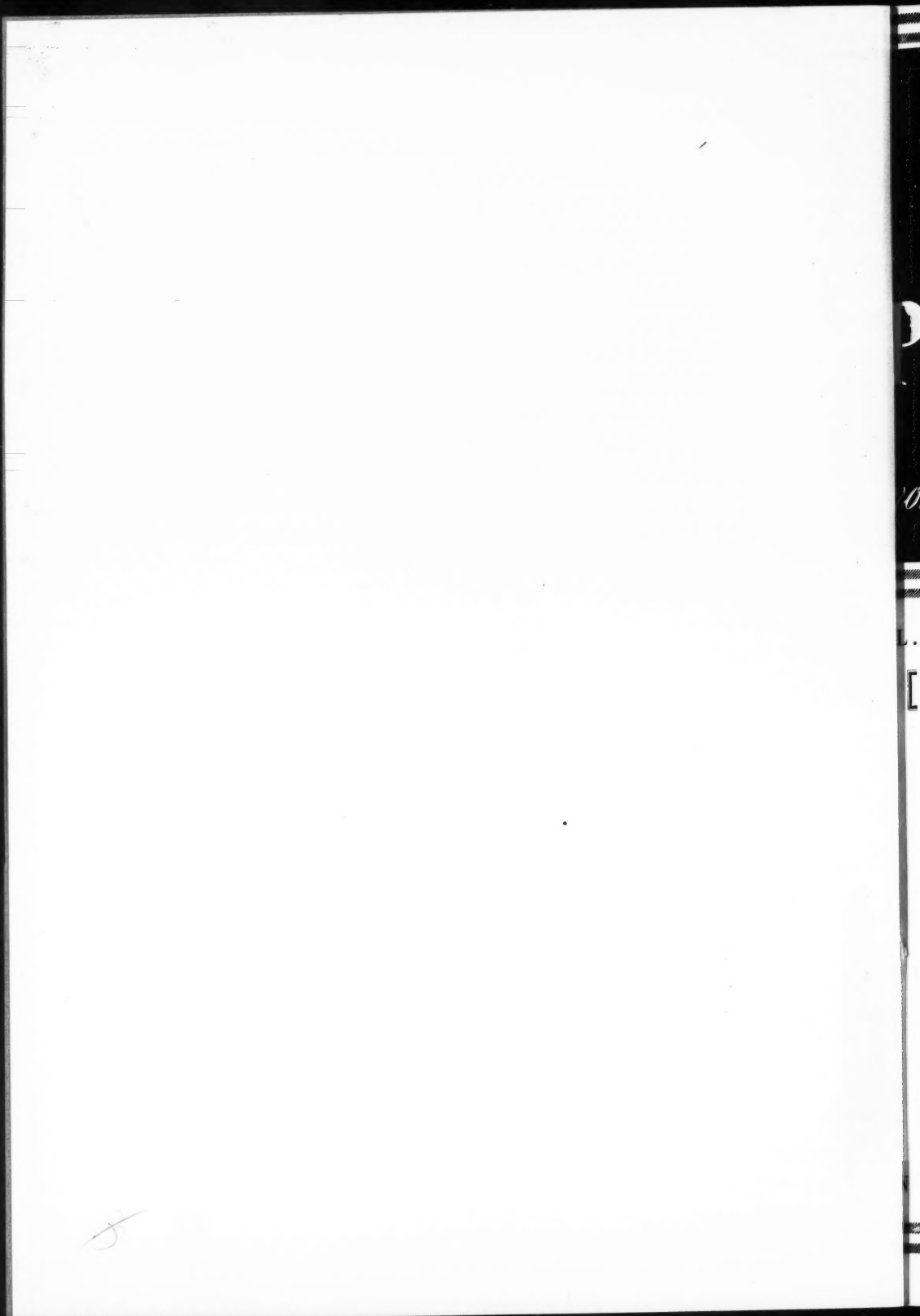


**THE
DENTAL PRACTITIONER**



THE DENTAL PRACTITIONER

Monthly Journal for the Practitioner and his Staff

SEP 24 1953

UNIVERSITY OF MICHIGAN

DENTISTRY
LIBRARY

DENTISTRY LIBRARY
SEPTEMBER, 1953

L. IV, NO. 1

[*Incorporating the Official Supplement of*
The Dental Laboratories Section of the Surgical Instrument Manufacturers' Association]

C O N T E N T S

Editorial : Diagnosis of Pain

The Diagnosis of Dental and Sinus Pain

G. R. SEWARD, M.D.S. (Lond.), F.D.S. R.C.S.

Dentistry in the Colony of Hong Kong :

A Case of Subacute Spreading Osteomyelitis of the Mandible

C. ALLWRIGHT, L.D.S. R.C.S. (Eng.), H.D.D. R.C.S. (Edin.), D.P.D.
(U. St. And.)

Notes of Bilateral Gemination of Canine Teeth in the Permanent Series

CATHAY LEE KUO-TAI, D.D.S. (W. China Union U.)

International Health Service Notes

Society Notes

Book Reviews

Abstracts from Other Journals

Official Supplement of the S.I.M.A.—Dental Laboratories Section

WRIGHT & SONS LTD., 42-44 TRIANGLE WEST, BRISTOL 8

TWO SHILLINGS AND SIXPENCE

DO YOU WANT

COLOUR FAST TEETH?
TEETH THAT ARE NOT STRIATED?
TRANSLUCENT, HOMOGENEOUS TEETH?
INTERCHANGEABILITY BY GROUPED SIZE SERIES?
TEETH WITH NATURAL PLACEMENT OF COLOUR?
AN INCOMPARABLE MOULD RANGE?

DO YOU WANT

all these

AND TO SAVE MONEY?



by

Classic
YOU DO!

*Obtainable from
your usual dealer
or direct from*

SOLE WORLD DISTRIBUTORS:

COTTRELL & CO.

15-17 · CHARLOTTE STREET · LONDON · W.1

Telephone: LANgham 5500

Telegrams: "TEETH, RATH, LONDON"

THE
DENTAL
PRACTITIONER

DENTAL LIB.
RK
1
D417
P23

A Journal of Dental Science for the Practitioner

*(Incorporating the Proceedings of the British Society of Periodontology,
and the Transactions of the British Society for the Study of Orthodontics)*

Joint Editors :

JOHN E. SEEAR, L.D.S. R.C.S. N. LIVINGSTONE WARD, L.D.S., D.D.S.

Associate Editors :

H. MANDIWALL, M.B., B.S., L.D.S.

DONALD F. SOUL, F.D.S. R.C.S.



VOLUME IV

SEPTEMBER, 1953—AUGUST, 1954

Monthly 2s. 6d. **JOHN WRIGHT & SONS LTD.** Annually 30s.
post 3d. 42-44 TRIANGLE WEST, BRISTOL 8 post free

SOLE AGENTS: *Australia:* Robertson & Mullens Ltd., Melbourne; *Canada:* The Macmillan Co. of Canada Ltd., Toronto; *New Zealand:* N. M. Peryer Ltd., Christchurch; *United States of America:* Staples Press Inc., New York; *Denmark:* Einar Munksgaard, Copenhagen; *Norway:* Olaf Norli, Oslo; *Sweden:* Gumperts Aktiebolag, Göteborg; *India:* The Dental Publishing Company, Bombay.

PRINTED IN GREAT BRITAIN BY
JOHN WRIGHT AND SONS LTD.,
AT THE STONEBRIDGE PRESS,
BRISTOL

8

Dental
Faron

THE DENTAL PRACTITIONER

A Monthly Journal for the Practitioner and his Staff

*(Incorporating the Proceedings of the British Society of Periodontology
and the Official Supplement of the S.I.M.A.—Dental Laboratories Section)*

Joint Editors:

JOHN E. SEEAR, L.D.S. R.C.S.

N. LIVINGSTONE WARD, L.D.S., D.D.S.

Associate Editors:

H. MANDIWALL, M.B., B.S., L.D.S.

DONALD F. SOUL, F.D.S. R.C.S.

VOL. IV, No. 1

CONTENTS

SEPTEMBER, 1953

	PAGE
EDITORIAL: DIAGNOSIS OF PAIN - - - - -	1
THE DIAGNOSIS OF DENTAL AND SINUS PAIN G. R. Seward, M.D.S. (Lond.), F.D.S. R.C.S.	2
DENTISTRY IN THE COLONY OF HONG KONG - - - - -	12
A CASE OF SUBACUTE SPREADING OSTEOMYELITIS OF THE MANDIBLE Walter C. Allwright, L.D.S. R.C.S. (Eng.), H.D.D. R.C.S. (Edin.), D.P.D. (U. St. And.)	17
TWO CASES OF BILATERAL GEMINATION OF CANINE TEETH IN THE PERMANENT SERIES - - - Cathay Lee Kuo-Tai, D.D.S. (W. China Union U.)	18
NATIONAL HEALTH SERVICE NOTES - - - - -	21
SOCIETY NOTES - - - - -	22
BOOK REVIEWS - - - - -	23
ABSTRACTS FROM OTHER JOURNALS - - - - -	11, 27, 34
OFFICIAL SUPPLEMENT OF THE SURGICAL INSTRUMENT MANUFACTURERS' ASSOCIATION— DENTAL LABORATORIES SECTION - - - - -	29

Monthly 2s. 6d. **JOHN WRIGHT & SONS LTD.** Annually 30s.
post 3d. 42-44 TRIANGLE WEST, BRISTOL 8 post free

SOLE AGENTS: *Australia:* Robertson & Mullens Ltd., Melbourne; *Canada:* The Macmillan Co. of Canada Ltd., Toronto; *New Zealand:* N. M. Peryer Ltd., Christchurch; *United States of America:* Staples Press Inc., New York; *Denmark:* Einar Munksgaard, Copenhagen; *Norway:* Olaf Norli, Oslo; *Sweden:* Gumperts Aktiebolag, Göteborg; *India:* The Dental Publishing Company, Bombay.

★

EDITORIAL NOTICES

CONTRIBUTIONS should be sent to the Editor, *The Dental Practitioner*, 42/44 Triangle West, Bristol 8. Original articles are accepted on the understanding that they are contributed solely to this Journal.

Manuscript should preferably be typewritten with double spacing and wide margins, and the author should keep a copy. Articles and their illustrations become the property of *The Dental Practitioner*, unless authors reserve the right before publication.

Illustrations should be clearly numbered and legends should be written on a separate sheet of paper and not put on the backs of the originals. Each figure should be referred to in the text. Prints are preferred to X-ray negatives and should be on glossy paper. Lettering which is to appear on illustrations is best shown on an overlay or rough sketch. It should not be put on the original.

Tables should be typed on separate pages and each should have a caption which will explain the data without reference to the text.

References to dental literature should be recorded in the text, with the name of the author and the year of publication in parentheses. In the bibliography they should be arranged in alphabetical order in the following form, the abbreviations of periodicals being those adopted in the *World List of Scientific Periodicals*, e.g. :—

SMITH, J. A. K. (1949), *Brit. dent. J.*, **86**, 271.

LEWIS, R. W. B. (1947), *The Jaws and Teeth*, 2nd ed., 471. London : Science Publishing Co.

Authors may obtain reprints of their articles if the Publishers are informed when the proofs are returned. They will be charged at the cost of production and 50 copies are suggested as a minimum.

BUSINESS COMMUNICATIONS should be sent to the Publishers, John Wright & Sons Ltd., Bristol, 8.

BINDING CASES

Binding cases for Volumes I, II, and III may be obtained from the Publishers at 3s. 6d. post free. They are supplied attractively lettered in gold on a dark red ground and include a title-page for binding.

If desired, the Publishers will undertake the binding at an inclusive charge of 15s.

May. 0830 **ASHLEY** May. 0830
DENTAL LABORATORIES
(Technical Advisers to the Dental Manufacturing Co. Ltd.)
FOR HIGH-CLASS PROSTHETICS
431, Oxford Street, W.1
Daily Collection in the London Area

CLASSIFIED ADVERTISEMENTS—continued

PUBLISHERS AND BOOKSELLERS

BOOKS BY POST. Have you yet developed the 'Wright' habit? You may order all your dental, medical, and nursing books by post with complete confidence in our ability to carry out your instructions to the smallest detail. Orders are promptly despatched from stock. John Wright & Sons Ltd., Publishers, Bristol, 8.

THE DENTISTS' CASH BOOK. Designed by a qualified Accountant for the Profession. The simplest method of recording data necessary to prepare the income and expenditure account which will satisfy Inspectors of Taxes, with full instructions for use. Price 21s. 8d., including tax. The Charnwood Publishing Co. Ltd., Coalville, Leicester.

THE DENTAL PRACTITIONER

A Monthly Journal for the Practitioner and his Staff

Vol. IV, No. 1

September, 1953



EDITORIAL

DIAGNOSIS OF PAIN

ONE of the most important aspects of dentistry deals with diagnosis. Satisfactory treatment must be based on correct diagnosis; but it is not always easy when the only symptom is that of vague pain in some indeterminate area. On examination nothing of note may be found in the mouth, but if the pain continues a very careful and thorough examination must be undertaken. It is wrong to dismiss a patient who complains of slight pain merely because nothing can be found to cause the complaint. Haphazard extractions in the hope that the right tooth may be removed is no better and may be actually dangerous. The pain may be due to some small area of irritation where a filling overhangs, or in the extreme case a slight pain over a period may be the danger sign of carcinoma of the antrum. The dentist should be able to distinguish all types of pain in the vicinity of the oral cavity, and should be in a position to refer the case if necessary to the proper specialist. A case has been known to have been referred to an E.N.T. specialist when the cause of pain has been traced to a cavity in the upper first molar. Mistakes like this could be avoided by the use of good radiographs and a careful history. In some cases it may be preferable to obtain the opinion of an E.N.T. surgeon first and eliminate the possibility of antral infection. This can be a useful precaution in the patient who complains

of pain in the area of very heavily filled teeth, which would necessitate the removal of numerous old amalgams. Antral infection gives rise to pain that appears to the patient to be of dental origin, but other diseases also present symptoms of pain in the oral tissues. The dentist is a diagnostician and he is in a position to discuss with the patient's doctor the possibility of referring the patient to a neurologist, psychiatrist, or to any other branch of medicine. The point being that the dentist nowadays should know to whom he wishes the case referred, and not send them, arbitrarily, to anyone in the hope that as he cannot find anything they will be more successful. The dentist has played an important historic role in the field of oral surgery and has made a profound contribution to the health of the community. There is no reason to suppose that the dental profession cannot play an equally great part in the diagnosis of facial pain.

FLUORIDATION

This journal has always shown an interest in fluorine and dental caries, and believes that the facts from both sides should be reported. A full review is therefore given of the report on the fluoridation of domestic water supplies, in North America, by the United Kingdom mission in February-April, 1952. (See page 23.)

THE DIAGNOSIS OF DENTAL AND SINUS PAIN

By G. R. SEWARD, M.D.S. (Lond.), F.D.S. R.C.S.

Registrar, The London Hospital Dental Department

BOTH dental and sinus diseases can cause pain in the maxilla, and sometimes it is a matter of some difficulty to arrive at a correct diagnosis.

DISEASES OF THE MAXILLARY SINUSES CAUSING PAIN

Dental surgeons are familiar with the diseases causing toothache, so sinus pain will be considered first.

First, infection due to a condition external to the sinus: This is the most important group of diseases from the dental surgeon's point of view, as teeth may cause sinusitis. Authorities vary in their estimates of the importance of a dental origin. Figures quoted are between 8 and 20 per cent of cases. Most odontogenic sinusitis is chronic in nature. Zange (1932), Hoepfel (1937), and Bauer (1943) showed that sinusitis could be due to chronic apical infection, spreading by continuity of tissues, into the antra. Euler (1934) and Hoepfel (1937) demonstrated histologically the infection of the sinuses by the same mechanism in cases of periodontal disease.

Inflamed sinus mucosa is more common than is generally believed in antra related to dental diseases.

Other causes in this group are: (a) Infection secondary to rhinitis, other infected sinuses, or bronchiectasis; (b) Functional disturbances due to anatomical anomalies like deviated septa; and (c) Irritation by dust.

The pus found in sinuses infected by organisms of buccal or nasal origin is not fetid, but where the sinusitis is of dental origin the pus is fetid.

Secondly, allergic diseases which may cause pain are hay fever, which is seasonal and transient, and vasomotor rhinitis, closely allied to hay fever but attacks recur throughout the year.

Chronically swollen mucosa due to protracted exposure to allergens is liable to bacterial invasion. This occurrence produces a further group of cases.

Lastly, there are the rare cases of maxillary pain, malignant neoplasm, and osteomyelitis of the maxilla.

Differential Diagnosis.—How is the dental surgeon to distinguish these conditions and differentiate them from dental ones? Their detailed investigation is outside his province and he is not skilled in the examination of these parts clinically. The inflamed nasal



Fig. 1.—Occipito-mental view. (Technique.)

mucosa with pus in the middle meatus of infective sinusitis and the pale swollen mucosa of allergic disease will not be visible to him. The method of diagnosis is considered under: (1) History; (2) Examination; and (3) Special investigation.

1. HISTORY.—

Pain.—The pain of sinusitis comes on or gets worse in the morning, sometimes with clockwork regularity. It may be made worse by bending down; in housewives by making the bed. This is in contradistinction to toothache, which is commonly worse at night.

The following is the sequence of pain in toothache if a change of quality takes place: (a) Sharp, caused by cold or sweet things. (b) Sharp, becoming sharp and throbbing, initiated by cold things and lasting for some time. Relieved by heat. (c) Dull and throbbing pain made worse by hot things; may be made worse or better by cold. (d) Relief of pain; swelling. (e) Dull throbbing pain made worse by hot things. (f) Discharge; relief of pain.

Bilateral pain is rarely toothache.

Sinusitis pain is dull and throbbing, lessening if the patient spends the day in a warm room. It may disappear if the head is inclined to the opposite side and there is drainage into the nose. Hot, cold, and sweet things in the

that found with infection of the upper canine, premolar, or molar teeth. Even if no swelling is present, the maxilla may be tender to pressure over the affected sinus.

A swelling in the buccal sulcus is diagnostic of dental disease.

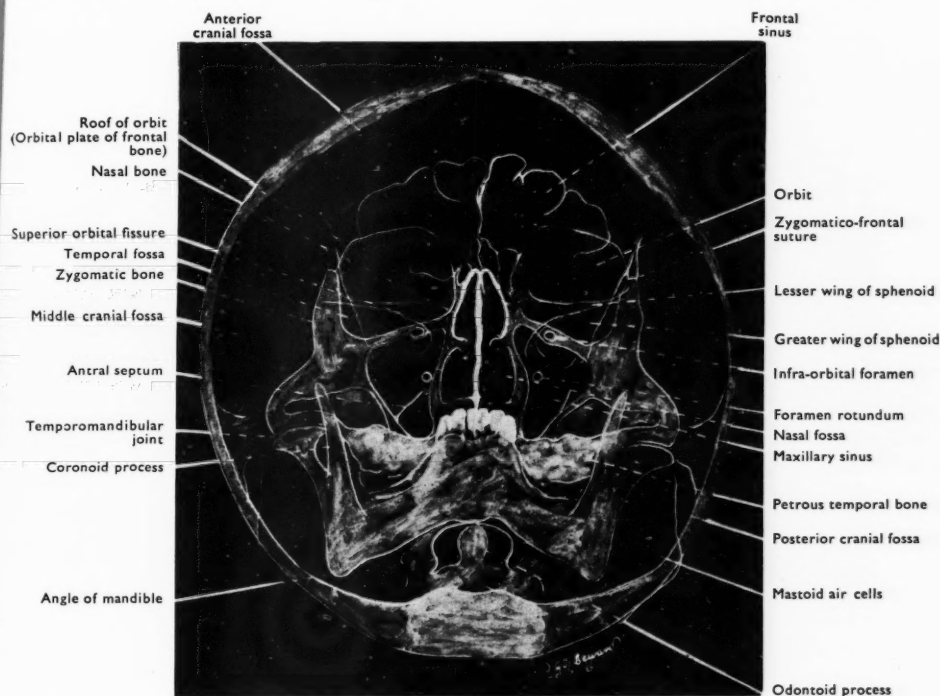


Fig. 2.—Diagram of occipito-mental view. (Anatomy.)

mouth do not affect it. A frontal headache is often associated with sinusitis.

Swelling.—A history of facial swelling can be due to either cause.

Discharge.—The discharge from a tooth abscess is commonly into the mouth, less commonly externally on to the face and only very rarely into the nose.

Past History.—The patient may give a history of previous attacks of sinus infection or allergic reactions.

2. EXAMINATION.—

Swelling.—Swelling of the cheek is to be seen in acute sinusitis. This may be similar to

Periostitic Teeth.—If all the teeth related to the antral floor are equally tender to percussion, sinusitis should be suspected.

Presence of Dental Disease.—In the absence of demonstrable caries or periodontal disease, sufficient to cause the pain, one's suspicions should be aroused.

If the dental condition is coincidental or the sinusitis is odontogenic, diagnosis is more difficult. If the latter is the case, removal of the cause (the tooth) may lead to resolution. If improvement of the patient's symptoms does not follow, sinusitis should be thought of and, if likely, expert help sought.

3. SPECIAL INVESTIGATION.—Transillumination and radiography may give valuable information.

radiographs of most value. Examples of difficulties with X-rays are: (a) The positive radiographic findings of a thickened mucosa



Fig. 3.—Acute mucosal thickening.

Transillumination.—This is not, however, foolproof. Thick bony walls may give bilateral dullness. Mucous cysts may or may not produce a loss of translucency.



Fig. 4.—Fluid level. Head upright.

do not necessarily imply clinically active disease; (b) transient changes due to allergy

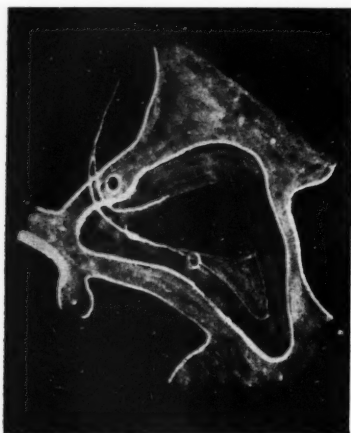


Fig. 5.—Fluid level. Head tilted sideways.

Radiography.—Radiographs of sinuses should be interpreted with caution, especially where sinus disease is concerned. Only as an adjunct to clinical examination are

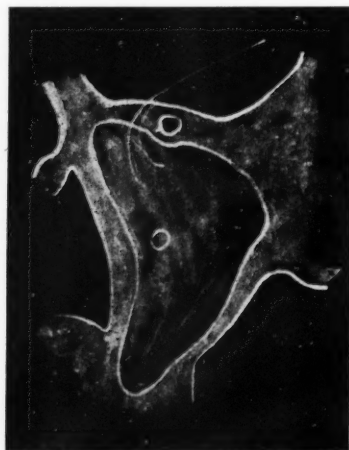


Fig. 6.—Sinus completely filled.

may show strikingly in a radiograph; (c) the thickened mucosa of infection and allergy may be indistinguishable in a radiograph.

Radiographic Technique.—

Occipito-mental view, extra-oral (Fig. 1): The ear-eye line is at 45° to the film. The film should be vertical (to show a fluid level).

Normal sinus (Fig. 2): The normal sinus in the adult has a clear-cut, distinct, bony wall. Mucosa is not visible if the sinus has not been diseased.

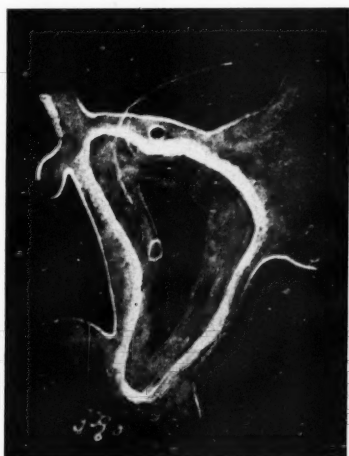


Fig. 7.—Chronic mucosal thickening.



Fig. 8.—Polypi in antrum.

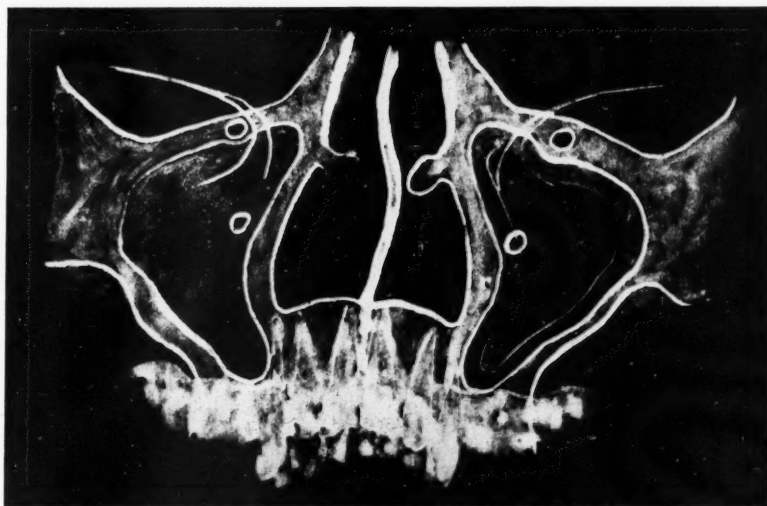


Fig. 9.—Sinusitis: acute (right) and chronic (left).

The central ray is directed perpendicularly to the film at a point $1\frac{1}{2}$ in. above the external occipital protuberance.

In growth sinus outline may be indistinct. The sinus is translucent in proportion to its air content. A small sinus with thick bony

walls may appear more opaque than a large one. Opacity must be judged in relationship to the size of the cavity.

A SIMPLE CONSIDERATION OF THE RADIOGRAPHIC FINDINGS IN SINUS DISEASES

Acute Mucosal Thickening (Fig. 3).—Acute thickening of the lining membrane. Whether the agent is allergic or infective the only sign

mucosal shadow may approach the density of a bone shadow.

There may or may not be a fluid level from mucopurulent or purulent exudate.

In chronic infection there is an even thickening of the mucosa and a sclerosing osteitis of the walls.

Polypi (Fig. 8).—In chronic allergic sinusitis there is formation of polypi and a rarefying osteitis of the walls.

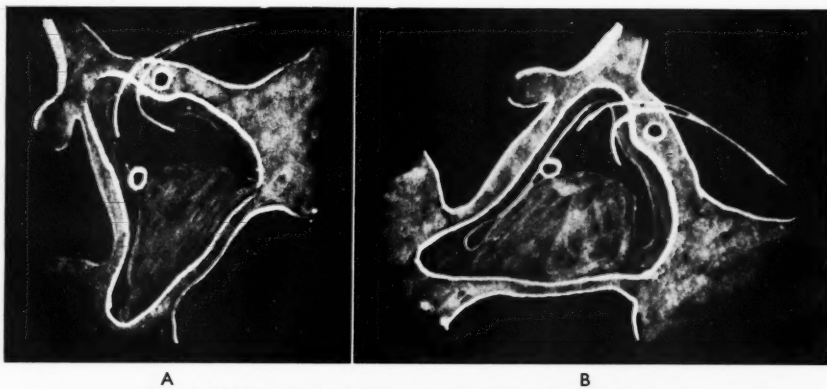


Fig. 10.—Mucous cyst. A, Head upright; B, Head tilted sideways.

is the thickening of the mucosa, with or without fluid.

Fluid Level (Figs. 4, 5).—In more severe cases mucus and pus appear and may form a fluid level as represented in these diagrams.

If the head is tilted sideways and a further film exposed (Fig. 5), the movement of the fluid level can be demonstrated.

Note: It is not possible to differentiate between pus, mucus, blood, and water (used for an antral wash-out) radiographically.

Sinus completely Filled (Fig. 6).—If swollen mucosa blocks the ostium, the fluid may completely fill the sinus. In acute cases the bony walls of the sinus are not affected.

The diagram represents a sinus filled with mucosa and fluid. In allergic disease such an appearance may be seen after a matter of hours.

Chronic Mucosal Thickening (Fig. 7).—In chronically thickened mucosa there is a thickening with increase of connective tissue. The



Fig. 11.—Malignant neoplasm.

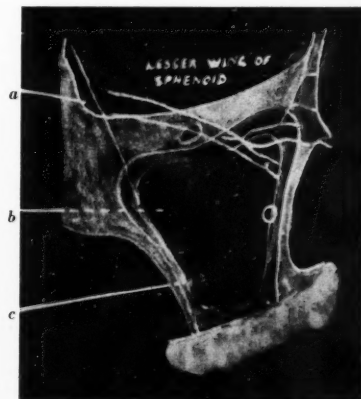
Acute and Chronic Sinusitis (Fig. 9).—This diagram represents an early acute right

maxillary sinusitis. There is chronic hypertrophy of the lining of the left sinus. This residual thickening remains although the infection has passed. The acute lesion of the right sinus is

They may undergo a cystic degeneration to form mucous cysts, which may be detected radiographically as they behave like a bag of fluid when the head is tilted (Fig. 10 B).



A

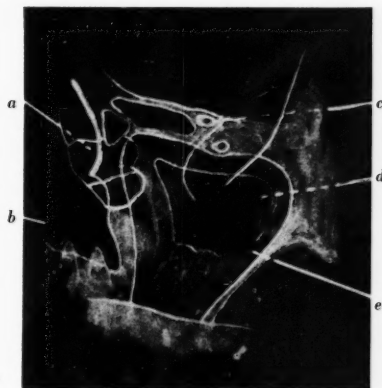


B

Fig. 12.—A, Right antrum—mucosal thickening; B, Diagrammatic presentation of condition in A. a, Temporal fossa; b, Right maxillary sinus; c, Thin rim of mucosal thickening.



A



B

Fig. 13.—A, Left antrum—mucosal thickening; B, Diagrammatic presentation of A. a, Ethmoidal sinuses; b, Nasal fossa; c, Infra-orbital foramen; d, Left maxillary sinus; e, Thickened mucosa.

masked radiologically by the appearance of the now uninfected left sinus.

Mucous Cysts (Fig. 10).—Polypi are fibromyxomatous swellings: a hyperplasia of the mucosa usually resulting from allergy.

Occasionally these cysts are seen in oblique occlusal views.

Malignant Neoplasm (Fig. 11).—These cause soft-tissue shadows within the sinus and the adjacent nasal cavity. The bony walls later

show signs of resorption and destruction. The presence of the neoplasm in the nasal cavity occludes the ostia of other sinuses. Opacity of these sinuses follows from dammed-up

relationship to the sinus. Infection from the canine had involved the root. A radiograph demonstrated a thin rim of mucosal thickening in the related sinus.

2. Mucosal thickening due to odontogenic sinusitis (Fig. 13).—Mrs. W. R., aged 30, gave a history of pain

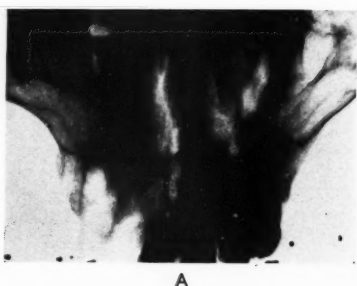


Fig. 14.—A, "Cloudy" right antrum; B, Diagrammatic presentation of A. a, Nasolacrimal duct-canal; b, Right maxillary sinus; c, Right nasal fossa; d, Incisive fossa.

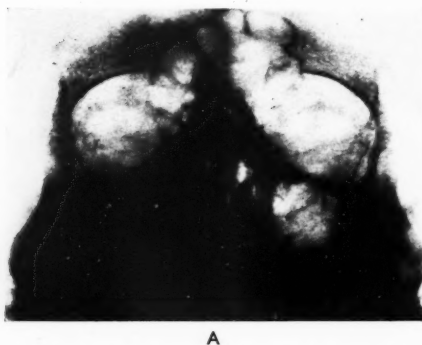
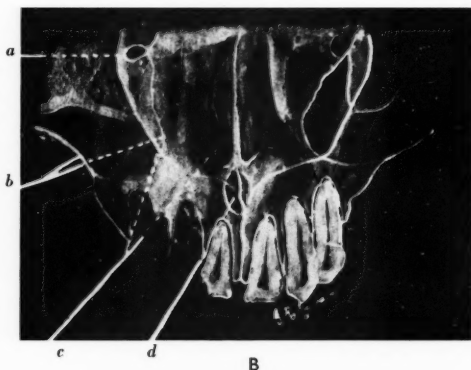
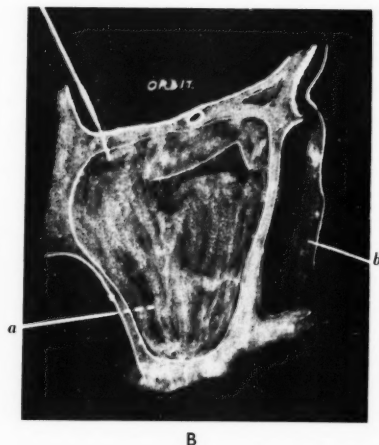


Fig. 15.—A, Another view (occipito-mental) of Fig. 14 A; B, Diagrammatic presentation. a, Opaque right maxillary sinus; b, Nasal fossa.



secretions. Opacity of all the sinuses on one side, but not on the other, is of serious significance.

ILLUSTRATIVE CASES

The following histories and radiographs illustrate the relationship of toothache and sinusitis.

1. Mucosal thickening in relationship to dental diseases (Fig. 12).—Mrs. L. H., aged 37, complained of pain in the right maxilla following the removal of 31. There had been an unsuccessful attempt to root-fill this tooth. Investigations showed a retained 41 root in close

relationship to the sinus. Infection from the canine had involved the root. A radiograph demonstrated a thin rim of mucosal thickening in the related sinus.

2. Mucosal thickening due to odontogenic sinusitis (Fig. 13).—Mrs. W. R., aged 30, gave a history of pain

two months before in the left side of the maxilla and mandible, which was referred to her ear. After injections of penicillin the pain disappeared. It recurred in the maxilla only. This latter pain was throbbing and was worse in the morning. On examination, there was an oedematous red swelling of the infra-orbital region of the cheek. The cheek teeth were periostitic. 78 were very carious and elongated. There was no swelling buccal to 78.

3. An opaque sinus due to odontogenic sinusitis.—Mr. G. T., aged 43, was referred by a dental surgeon as

swelling of the right cheek and pain had continued six days after 7] had been extracted.

On examination, 432] were found to be carious and periostitic. There was a fluctuant swelling in the sulcus over 4]. 432] were extracted and the abscess drained under nitrous-oxide-oxygen anaesthesia. Five days later,



Fig. 16.—Opaque left antrum in child, aged 5.

though the patient was much improved, there was still some swelling and tenderness of the right cheek. The patient now complained of frontal headaches. The sockets were healthy.



A

In an occlusal radiograph the right sinus was observed to be more opaque than normal (Fig. 14). An occipito-mental view confirmed this (Fig. 15).

The advice of the E.N.T. Department was sought. Subsiding right maxillary sinusitis, which had arisen from the infected teeth, was diagnosed. Fourteen days later the patient was symptom-free.

4. A patient with sinusitis who presented complaining of toothache (Fig. 16).—Miss S. H., aged 5, complained of pain in the left maxilla for a week. The left cheek had been swollen for six days and the swelling was increasing. The patient had a history of asthma, and had had a unilateral discharge from the nose for the past two days.

On examination, the left cheek was red, swollen, and cedematous. It was tender to pressure. There was no dental cause detectable either clinically or radiographically. Temperature 100.4°, pulse 120, respiration 30.

Radiographs of the sinuses showed cloudiness of the left antrum. Transferred to the E.N.T. Department. Diagnosis: acute left maxillary sinusitis.

It is important to remember that young children may suffer from sinusitis.

5. An example of allergic sinusitis (Fig. 17).—Mrs. D. F., aged 25, was referred by her doctor to the E.N.T. Department with chronic nasal obstruction and bilateral supra-orbital headaches.

Nasal examination revealed pale boggy mucous membrane and hypertrophied inferior turbinates. There was no pus. The condition was suggestive of allergic sinusitis and sinus radiographs showed a mucous cyst in the right antrum.

The patient was referred to the Dental Department at this time and a root removed from the 5] region.

The mucous cyst seen in the occipito-mental view should not be confused with a cyst of dental origin

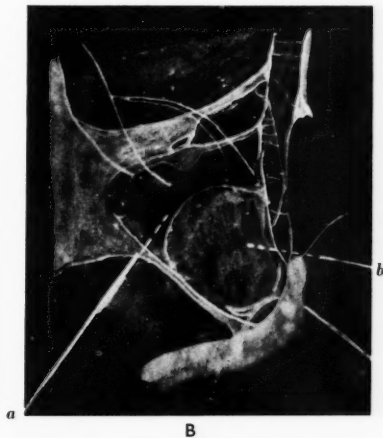


Fig. 17.—A, Mucous cyst—right antrum; B, Diagram of A. a, Right maxillary sinus; b, Mucous cyst.

involving the antrum. The shadow of such a cyst would show a thin white "bony" line at its periphery. A lateral sinus view demonstrates the rounded shape of the cyst (Fig. 18).

6. Carcinoma of the maxilla.—An example of a radiograph of a carcinoma of the antrum showing no evidence

of bony resorption but dullness of the frontal sinus (Fig. 19).

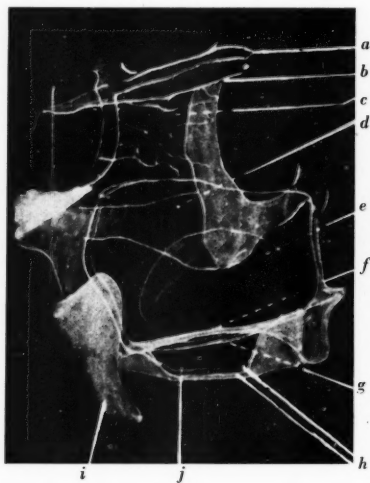
A film taken later shows a resorption of the orbital floor (Fig. 20).

down. There was one ulcer on the palate and one in the sulcus communicating with the antrum.

Radiographs showed bony destruction of the floor and lateral wall of the right antrum (Fig. 21).



A

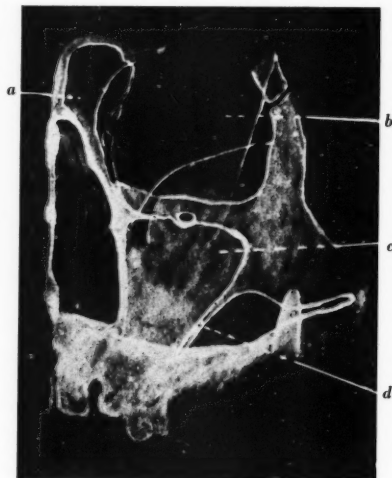


B

Fig. 18.—A, Lateral sinus view of Fig. 17 A; B, Diagrammatic presentation of condition. *a*, Roofs of orbits; *b*, Cribriform plate; *c*, Ethmoid air sinuses; *d*, Zygoma; *e*, Mucous cyst; *f*, Palate; *g*, Floor of nose (laterally); *h*, Right and left floor of antrum; *i*, Mandible; *j*, "Cystic" appearance where shadows of antra dip below those of the nasal cavities.



A



B

Fig. 19.—A, Early carcinoma of left antrum; B, Diagram of A. *a*, Opaque left frontal sinus due to retained secretions; *b*, Orbit; *c*, Opaque left antrum (carcinoma); *d*, Canal for the posterior superior alveolar vessels.

7. Carcinoma of the maxilla.—This patient was referred by her dental surgeon complaining of pain in the right side of the maxilla and swelling of the palate. On examination, the palate was seen to be bulging

My thanks are due to Mr. G. T. Hankey, Lecturer in Dental Radiology, for his advice and

one in
 or and

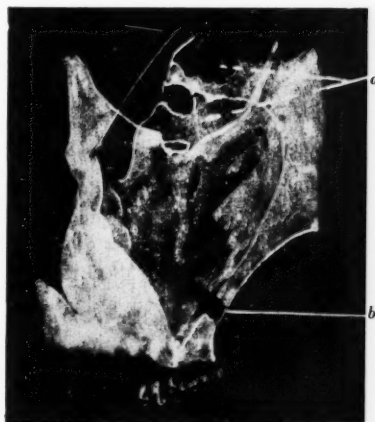
criticism and for permission to use the radiographs; to Messrs. A. G. Allen, G. T. Hankey,

S. G. Allen, and Professor A. E. W. Miles, Consultant Dental Surgeons, for permission



A

Fig. 20.—A, Case in Fig. 19 A (carcinoma) six months later; B, Diagram of A. a, Destruction of flow of orbit from both antral and orbital aspects; b, Wall of vascular canal destroyed.



B

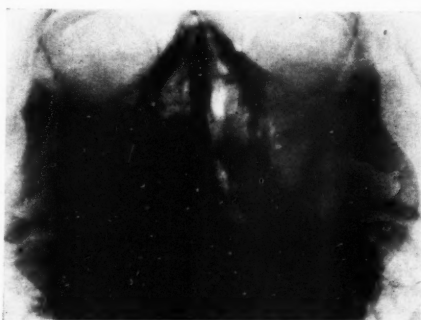


Fig. 21.—Extensive carcinoma in right antrum.

to use their cases; and to Mr. P. Broadbery, A.R.P.S., for his expert photography.

REFERENCES

- BAUER, W. H. (1943), *Amer. J. Orthodont.*, **29**, 113.
 EULER (1934), *Dtsch. zahnärztl.*, **37**, 937.
 HOEPFEL (1937), *Dtsch. Zahn-, Mund- u. kieferheilk.*,
4, No. 44, 116.
 ZANGE (1932), *Oto-rhino-laryng.*, **35**.

BIBLIOGRAPHY

- GRAHAM-HODGSON, SIR HAROLD (1951), *A Textbook of X-ray Diagnosis*, 2nd ed., 1, Pt. iv, 335. London: H. K. Lewis & Co.
 STONES, HUBERT H. (1951), *Oral and Dental Diseases*, 2nd ed., 679. Edinburgh: E. & S. Livingstone Ltd.
 THOMA, KURT H. (1950), *Oral Pathology*, 3rd ed., 878. London: Henry Kimpton.

OBSERVATIONS ON THE CLINICAL USE OF A CHLOROPHYLL DENTIFRICE

The study of 20 patients using a chlorophyll-containing dentifrice in an uncontrolled brushing technique, which produced no effect on the lactobacillus counts after six to nine months' usage.

The effect of the same dentifrice on 109 patients with a chronic gingivitis was compared with 137 similar patients using dentifrices of their own choice. At the end of six to nine

months, no important differences were observed between the two groups with regard to gingival appearance or gingival sensitivity incident to subgingival curettage. Some tendency towards decreased gingival hæmorrhage was observed in the group using the chlorophyll dentifrice, but this was not statistically significant.—KUTSCHER, A. H., and CHILTERN, N.W. (1953), *J. Amer. Dent. Ass.*, **46**, 428.

DENTISTRY IN THE COLONY OF HONG KONG

By WALTER C. ALLWRIGHT, L.D.S. R.C.S. (Eng.), H.D.D. R.C.S. (Edin.), D.P.D. (U. St. And.)

Senior Government Dental Surgeon and Dental Specialist, Hong Kong

GEOGRAPHY, CLIMATE, POPULATION

HONG KONG lies just within the tropics, on the south-eastern coast of the Chinese Province of Kwangtung. The Colony includes Hong Kong Island (32 sq. miles), on which is situated the capital city of Victoria, the ceded territory of Kowloon (3 $\frac{1}{4}$ sq. miles), Stonecutters Island ($\frac{1}{4}$ sq. mile), and the New Territories, which consist of the remainder of the mountainous peninsula of Kowloon together with numerous islands (355 sq. miles) leased from China on July 1, 1898, for 99 years. The total area of the Colony is thus roughly 391 sq. miles, a large proportion of which is steep and unproductive hillside. The New Territories include seventy-five adjacent islands, many of which are uninhabited. Productive land is even scarcer than on the mainland, and the estimated island population of 60,000 includes many fisherfolk living aboard their boats.

The climate is subtropical and is governed to a large extent by the monsoons, the winter being normally cool and dry and the summer hot and humid. The early winter is the most pleasant time of the year, the weather being generally sunny and the atmosphere dry. Later in the winter cloud is more frequent, though rainfall remains slight; in March and April long spells of dull overcast weather may occur. In the summer months of May to September the weather is persistently hot and humid and is often cloudy and showery, with frequent thunderstorms. The summer is the rainy season, three-quarters of the annual rainfall falling in the five hottest months. The mean annual rainfall is 84.26 in.

From June to October Hong Kong is most liable to be affected by typhoons. A typhoon the centre of which passes over or near to the Colony spells disaster for any small boats not able to reach shelter in time. Sixteen such disasters have occurred in the last seventy years. The mean monthly temperature varies from 59° F. in February to 82° F. in July, the average for the year being 72° F. The reading

does not frequently rise above 95° F., and very seldom falls below 40° F. In spring and summer the humidity is persistently high, at times exceeding 95 per cent, while in the early winter it may fall as low as 20 per cent.

The population of the Colony is estimated to be about 2 $\frac{1}{4}$ millions, of whom about 15,000 are Europeans. Although Hong Kong's prosperity has always been associated with a flourishing entrepôt trade, since the war many new light industries have been set up. This is fortunate in that since the Korean war and the imposition of the American embargo, and the enforced closing down of many foreign firms in China, the general volume of trade with China has been considerably reduced. In spite of the efforts of government and voluntary welfare organizations, there is, in consequence of the general influx of Chinese during the closing stages of the civil war in China and the diminution of trade, a considerable number of people insufficiently employed and suffering from lack of food and inadequate living conditions.

PUBLIC DENTAL SERVICES

Although the part-time services of local dental practitioners were employed before the second world war to carry out essential hospital and emergency dental treatment, it is only since the war that the Hong Kong Government Dental Services have been established on the firm basis of employment of full-time dental surgeons and other staff. Under the British Military Administration which was established in 1945 following the Japanese Occupation, three dental clinics and a dental laboratory were set up with a variety of equipment and stores, most of it supplied by the British Armed Forces, and some left behind by the Japanese.

These clinics were originally staffed by a few private dental practitioners working part time. They, together with service dental officers, did a very good job of work in dentally rehabilitating before repatriation the civilians

who had been interned by the Japanese in Hong Kong and China. Since setting up the main government (adult) dental clinic in the old Sai Ying Pun Hospital in 1945, the amount of dental work necessary has increased so much that a new clinic is overdue. A new polyclinic to be built in 1953 in the thickly populated Eastern district of Victoria will include two dental clinics. The second floor of the new building will provide a school dental clinic (4 surgeries, waiting-room, recovery room, office, etc.) and the main government adult dental clinic (4 surgeries, offices, waiting-room, laboratory, etc.). In this way while centralizing administration of adult and school dental services, the child and adult patients can be separated and both can be provided with their own special amenities.

The Hong Kong Government dental services are organized in a subdepartment of the Medical Department, the Senior Dental Surgeon being responsible to the Director of Medical and Health Services. In addition to the Senior Dental Surgeon there are on the establishment ten dental surgeons, two of whom are men of special experience appointed from the United Kingdom. All Government servants, their wives, and children (but not their concubines or their concubines' children) are entitled to full dental treatment in Government dental clinics. All treatment is free except for dentures, for which charges are made according to scales of fees varying with the salary of the patient, or the patient's husband or father as the case may be. For a full upper and lower denture the full charge is HK\$150 (£9 7s. 6d.). This charge is scaled down to a minimum of HK\$25 (£1 11s. 3d.) or HK\$1.00 (1s. 3d.) per tooth for a Government servant earning less than HK\$140 (£8 15s.) basic salary (not including cost-of-living allowance) per month. Although non-precious metals are normally used for fillings and dentures, if gold is considered necessary it is used without additional charge to the patient.

In addition to the facilities for Government servants, a school dental service is being built up. At present there are six assistant dental surgeons working full time in single surgery clinics in the school dental service. Four of

these dental surgeons are responsible for full treatment (except orthodontics) of a number (varying between 12,000 and 18,000) of pupils paying a capitation fee of HK\$15 (18s. 9d.) per year. This fee includes full medical treatment as well as dental examinations and treatment. The other two dental surgeons are available mostly for emergency dental treatment of Government schoolchildren numbering about 28,000 who pay a reduced medical fee of HK\$5 (6s. 3d.) per year. Dental nurses on the New Zealand pattern are being trained in Malaya, and will be employed in 1955 to assist in the expansion of the schools service. This decision has been reached because of the lack of a regular supply of well-trained dental surgeons in the Colony. Although the Medical Faculty of the Hong Kong University is of a very high standard, and its graduates enjoy reciprocity of registration with the General Medical Council, there is no dental school within the University. Without a dental school the question of replacement of the present private dental practitioners as they retire will become an increasingly serious matter. At the present time, of the 344 civilian dentists (not including dental officers of the Armed Forces) on the Hong Kong Dentists Register only 53 are qualified. The remainder were admitted to the Register when it was reorganized under the Dentists Ordinance of 1940, and they correspond to the "Dentists 1921" in the United Kingdom. Unless a steady source of qualified dental surgeons becomes available to help to replace the present practitioners, a high proportion of whom are middle-aged and elderly, the Dental Board may in ten years' time be forced to consider whether to take the retrograde step of once more admitting to the Register dentists who are not academically qualified. The Dental Board and also the Hong Kong Dental Society are very concerned over this problem, but unfortunately, owing to the high cost involved, it is proving difficult to advance plans for a dental school beyond the general discussion stage.

The Government provides facilities for poor persons to obtain emergency dental treatment (Fig. 1). Free treatment sessions are held at regular times at the two main Government

dental clinics, one in the congested Western district of Victoria, on the Island of Hong Kong, and the other in Kowloon on the mainland peninsula across the harbour. The demand for treatment at these free clinics is very high, and in addition to large numbers of extractions performed, many cases of oral surgery are dealt with, beds being available in the two main Government hospitals. Free dental

time numbering about 40 dental surgeons, were offered to the various welfare societies in the Colony. As a result, two evening dental clinics were established in rooms in welfare centres. The equipment and instruments were provided on loan by the Government Medical Department, and regular supplies of drugs and materials were offered free of charge from the same source. Since 1950 the Voluntary Clinics



Fig. 1.—Registration of general public patients for emergency dental treatment at the Government Dental Clinic, Hong Kong.

emergency clinics, using transportable equipment, are operated once monthly in three areas of the New Territories, namely Tai Po and Un Long on the mainland, and the Island of Cheung Chau. At these clinics, one dental surgeon will usually treat from 40 to 80 or more patients during the half-day he attends.

Finally, Government dental services extend to the provision of treatment for in-patients at the two main government hospitals which have a total of 806 beds, for in-patients of the Mental, Infectious Diseases, and Tuberculosis Hospitals, and also for prisoners.

The private dental practitioners of Hong Kong are concerned that so many poor people suffer dental distress. Soon after the formation of the Hong Kong Dental Society in 1950, the voluntary services of its members, at that

have been open four evenings per week, the professional staff, all being members of the Hong Kong Dental Society, giving their services free of charge. Included among the members on the roster are Government dental surgeons and dental officers of Her Majesty's Forces stationed in Hong Kong. A roster is also maintained by the Society to provide a dental surgeon one evening per fortnight to carry out dental treatment for in-patients of the Hong Kong Antituberculosis Association's Sanatorium.

Still another roster of voluntary dental work is maintained by the St. John Ambulance Brigade. This organization sends out each Sunday a Penetration Party making long journeys by road and sea to visit outlying villages in the New Territories (Fig. 2).

Vaccinations and inoculations are performed by the nurses, and doctors attached to the parties give advice and treatment to the sick. Dentists, using transportable equipment, carry out dental treatment, mostly extractions, for



Fig. 2.—Surrounded by an interested crowd, the patient prepares herself for an extraction in the open-air dental clinic set up by a volunteer dental surgeon with the St. John Ambulance Brigade Penetration Party on a visit to a remote village in the New Territories.

the villagers and fisherfolk. This scheme has proved a great boon to the people in the New Territories of Hong Kong, many of whom can only come into town by tedious journeys in junk or sampan.

The scope and extent of these various voluntary services for the poor reflect the greatest credit on the dental profession in Hong Kong.

DENTAL ASSOCIATIONS

There are two associations of dentists in Hong Kong. The Chinese Dental Association includes among its members most of the unqualified registered dentists in the Colony, and nearly all the qualified dental surgeons belong to the Hong Kong Dental Society. The reason for the existence of two bodies is mainly due to language. With few exceptions the unqualified dentists speak only Cantonese dialect and have no English, whereas the qualified dental surgeons all speak English. Since its formation in 1950, the Hong Kong Dental Society has proved itself to be very active in promoting co-operation and the raising of ethical standards among the profession in Hong Kong. As shown by its organization of voluntary evening

dental clinics, the Society is actively concerned for the welfare of the community. The Society is giving its support to two suggested schemes to benefit the community. Firstly, a scheme of fluoridation of the water supplies of the Colony would be beneficial to all, and would be of especial value to the thousands of underprivileged children who are without schools, and who receive no routine dental treatment whatsoever. Secondly, the leaders of the dental profession in Hong Kong are sufficiently far-sighted to see the necessity for a dental school of a high standard whose graduates will enjoy reciprocity in registration with their colleagues graduating in the United Kingdom and the Commonwealth generally.

THE DENTAL BOARD

The Dental Board is the controlling body for dentistry in the Colony. Close co-ordination of its activities with those of the Medical, Pharmacists, and Nurses and Midwives Boards is ensured by the Chairman of the five Boards being the same person. The Chairman and Registrar of the Dental Board is the Director of Medical and Health Services, and the Secretary is an officer of the Government Administrative Service. There are, in addition to the Registrar and Secretary, seven members of the Board. These comprise the Senior Government Dental Surgeon, four dental surgeons in private practice, and two private medical practitioners.

Since the war the Dental Board has been much concerned with the lowered ethical standards which were a legacy of the occupation years when most of the registered dental practitioners left Hong Kong for the mainland of China. The Board has found it necessary to lay down hard-and-fast rules as to number and size of signboards which registered dentists may exhibit outside their premises, and also to define the wording (in English and/or Chinese) which may be used on them. After the war, large signboards, highly coloured paintings of false teeth, showcases, and strings of extracted teeth were often seen outside registered dental premises, and handbills advertising the merits of individual dentists were common. Such offences against professional

ethics are now rare. Cases of unregistered dental practice are still common. The Board employs two Chinese dental inspectors who are empowered to enter for purposes of inspection not only registered dental premises but any premises where there is reasonable cause

to assure themselves of the identity of dentists whom they visit, every registered dentist is required by law to exhibit in a conspicuous place in his office his certificate of admission to the register. This certificate is signed by the Director of Medical and Health Services and to it is attached a photograph of the person to whom it is issued.

CLINICAL CONDITIONS

There is a wealth of interesting clinical material in Hong Kong. It is common to find, for example, advanced cases of blood dyscrasias, syphilis, tuberculosis, and carcinoma, particularly carcinoma of the nasopharynx. Oral diseases such as cysts of the jaws, benign and malignant soft-tissue tumours, and osteomyelitis are often left untreated until they assume gross conditions. The Chinese appear to have a susceptibility towards osteomyelitis of the mandible, and although advanced and rapid-spreading cases are usually confined to poor people, such people are not always subjects of malnutrition. The case report of osteomyelitis of the mandible which follows describes a typical condition frequently encountered in Hong Kong among Chinese patients, but never, in the experience of the present writer, among other races such as Indians, Europeans, or Eurasians. The Chinese population present sharp contrasts in their susceptibility towards dental caries. Some seem relatively immune throughout life, whereas others exhibit signs of extensive caries in childhood and young adult life. Many of those who appear to be immune have been brought up in country districts, although one does find some people born and bred in the towns of Hong Kong who are relatively caries-free. Most Chinese children, however, have rampant caries, and orthodontic irregularities are common because of early loss of deciduous teeth.

Owing to the fact that the Colony's water is mostly derived from run-off sources, the fluorine content is negligible. In the present writer's personal opinion a scheme of fluoridation of water supplies would be highly beneficial to the population of Hong Kong. Such a scheme would have far-reaching effects. By



Fig. 3.—Locally designed propaganda poster emphasizing the importance of brushing teeth up and down and not from side to side by comparing with the normal method of scrubbing a Chinese rush sleeping mat.

to believe that dentistry is being practised illegally. When such cases are discovered, charges are invariably preferred, and on conviction magistrates may impose fines of up to \$1000 and up to six months' imprisonment. Hong Kong is so crowded with people, many of whom find great difficulty in making adequate livings, that those who have had experience of dentistry as surgery attendants or mechanics, or who have practised dentistry themselves in China but who cannot be registered in Hong Kong, are tempted to treat patients themselves. So that the public may

reducing caries among all the town-dwelling children, including those poor children for whom schools and the health services which

go with schools are not available, much misery would be avoided and the general health of the population would be improved.

A CASE OF SUBACUTE SPREADING OSTEOMYELITIS OF THE MANDIBLE

CASE REPORT

T. L. K., Chinese male, aged 24 years, farmer (Fig. 1).

History.—The patient reported having had profuse discharge of pus from the gums on the right side of the lower jaw (? 8) for six months.

March 13, 1950: Admitted to hospital by doctor to whom he applied for treatment as his jaw was becoming

ingly, an upper cap splint was constructed in acrylic before operation, with vertical extensions which would hold in place a temporary composition splint, and subsequently an acrylic splint, to maintain the shape of the soft tissues after the removal of the necrosed bone.

May 23, 1950: OPERATION.—Under intratracheal anaesthesia, 8⁸ were extracted. 8⁸ were



Fig. 1.—The patient with bilateral swelling of cheeks.

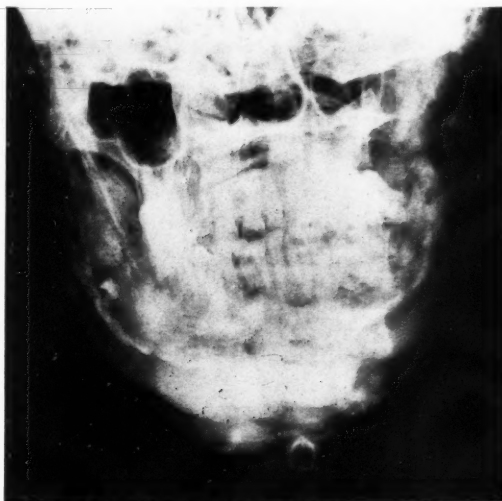


Fig. 2.—X-ray showing the condition.

painful not only on the right side but at the front and left as well. Penicillin given—units 50,000 6-hourly.

March 15, 1950: Seen by Dental Surgeon. This had been a perfect mouth, marred only by a tendency to close bite. All teeth were present, none of which was carious, filled, or crowned. The upper teeth were spotlessly clean, and the gums firm and pink and in excellent condition. The lower teeth were fairly clean but were loose; pus was discharging from the gum margins of all teeth and from multiple sinuses overlying buccally the alveolar processes. There were five sinuses on the neck discharging pus profusely. The cheeks were very swollen. There was only a little trismus. Temperature—maximum 99.6° F. X-ray showed widespread bony infection of left and right sides of body and ascending rami of mandible (Fig. 2).

Diagnosis: Bilateral subacute osteomyelitis of the mandible.

From the clinical and radiological appearance, a fracture or fractures was considered a probability at operation, and the possibility was considered of excision of nearly all the mandible being found necessary. Accord-

ing in fairly good position, but lying slightly buccally, and impacted into soft tissue only. There is no doubt that pericoronal infection around these teeth was the cause of the osteomyelitis. The whole of the buccal wall and alveolus of the mandible on both sides was removed together with most of the cancellous bone. The anterior aspect of the lower half of each ascending ramus, together with coronoid processes, was also excised. Parts of the lower border of the body were also found infected and excised. The posterior margins of the ascending rami and the lingual wall of the body of the mandible were left intact although very weak in places, and maintained the shape of the jaw, and no fracture resulted.

March 24, 1950: Patient's condition good. Temperature 99.2° F.

March 25, 1950: Temperature 99.8° F.

March 26, 1950: Temperature 98.8° F., above which it did not rise before discharge from hospital on March 30, 1950. Patient did not attend for follow-up treatment.

DISCUSSION

This is an example of how even a perfect mouth can be the subject of widespread osteomyelitis when the patient does not seek treatment in time. The patient was a farmer, and of excellent physique, to which he owed his rapid recovery. The trouble began with infection around erupting $\bar{8}$, a second

infective process probably began spontaneously around $\bar{8}$, and infection then spread from both sides and joined in or about the midline. In spite of the very heavy infection which had been present in the mouth for a period of many months, the upper teeth and gums were still perfect on discharge from hospital.

TWO CASES OF BILATERAL GEMINATION OF CANINE TEETH IN THE PERMANENT SERIES

By CATHAY LEE KUO-TAI, D.D.S. (W. China Union U.)

Assistant Government Dental Surgeon, Hong Kong

CASE REPORTS

Case 1.—The patient was a Chinese (Cantonese) girl, L. Y. F., aged 15 years, who attended a Hong Kong Government School Dental Clinic for routine dental treatment on Nov. 15, 1952.

It was noticed that $\bar{2}$ was markedly wider than normal and was notched at the incisal edge. $\bar{2}$ was slightly wider

$\bar{2}$ were wider than normal, and deeply notched at the incisal edges. (Fig. 4.) Crown widths were 7.8 mm. and 7.0 mm. respectively. $\bar{3}$'s were missing from the arch and X-rays established their complete absence from the jaw. X-rays showed $\bar{2}$ as possessing larger roots than normal for incisors, with single pulp canals open at the apices. (Figs. 5, 6.) There was no recollection of any teeth having been extracted at any time.



Fig. 1.—Case 1. A, Gemination of $\bar{2}$; B, Gemination of $\bar{2}$.

than normal but was not notched. (Fig. 3.) The widths of the crowns of $\bar{2}$ at their greatest dimensions were 8.0 mm. and 7.5 mm. respectively. $\bar{3}$'s were missing, and radiographs of the mandible failed to reveal the presence of these teeth. X-rays of $\bar{2}$ showed each to have a single root and pulp canal. (Figs. 1, 2.) The root of each was larger than those of $\bar{1}$, and could fairly be described as caniniform. There was no record or recollection by the patient of extractions of teeth later than the age of 7 years.

Diagnosis: Bilateral developmental gemination of mandibular permanent second incisors and canines.

Case 2.—The patient was a Chinese (Cantonese) boy, M. C. W., of 7 years, who attended the same School Dental Clinic on Jan. 29, 1953.

Diagnosis: Bilateral developmental gemination of mandibular permanent second incisors and canines.*

* A further peculiarity of Case 2 is the formation of the two partly erupted mandibular first molars. Each of these teeth exhibits a ring of raised enamel in the centre of the occlusal surface, with a tiny pit in the centre of the protrusion. Originally a short slender spike of enamel was present in each case, but it has broken off, leaving a fine canal which probably connects with the pulp. Such an anomaly was first described in detail by Tratman (1949). To it has been given the name "Leong's premolar", after Mr. M. O. Leong, who first described the condition in Malaya in 1946. Tratman presents it as the simplest type of dilated composite odontome.

DISCUSSION

To compare the widths of the geminated teeth with normal incisors, the first and second mandibular incisors of the permanent series of 24 Chinese children were measured, the maximum crown width of each tooth being recorded. Measurements for first incisors varied from 4.9 mm. to 6.0 mm., with an average of 5.33 mm. Second incisors varied from 5.1 mm. to 6.2 mm., with an average of 5.98 mm. The four teeth under discussion measured respectively 8.0 mm., 7.5 mm., 7.8 mm., and 7.0 mm. The widths of the first incisors of the two patients were 5.5 mm. (Case 1) and 5.3 mm. (Case 2).

Gemination of canine teeth with others of the normal series is rare. In fact, Bennett (1931) states that gemination "does not occur in the

repeated by Colyer and Sprawson (1931, a). Cases have, nevertheless, been reported,

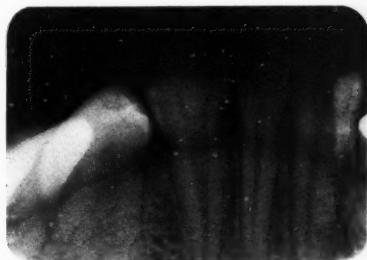


Fig. 2.—Case 1. Gemination of $\overline{32}$ showing comparative width of $\overline{1}$.

notably by Tratman (1937, 1939). Of his 3 cases involving the permanent dentition, only

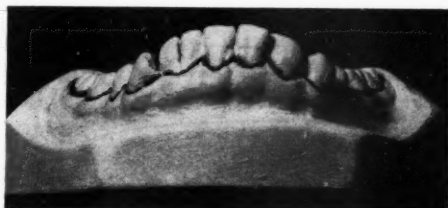


Fig. 3.—Case 1. Geminated $\overline{32}$ and $\overline{23}$.



Fig. 4.—Case 2. Notching of geminated $\overline{32}$ and $\overline{23}$.



A



B

Fig. 5.—Case 2. A, Gemination of $\overline{32}$; B, Gemination of $\overline{23}$.

canine region, as these teeth are developed at some distance from those which will ultimately lie adjacent to them". This statement is

one was bilateral, and was in a Chinese (Cantonese) boy in Singapore. Tratman's other two cases occurred on the right side only, one

patient being Cantonese and the other Malay. It would appear that a racial factor is involved. Winklmaier (1951), however, reports 2 cases from Germany, one a 40-year-old female with

Our grateful thanks are due to Dr. K. C. Yeo, Director of Medical and Health Services, Hong Kong, for permission to use departmental records and X-ray films and to publish the

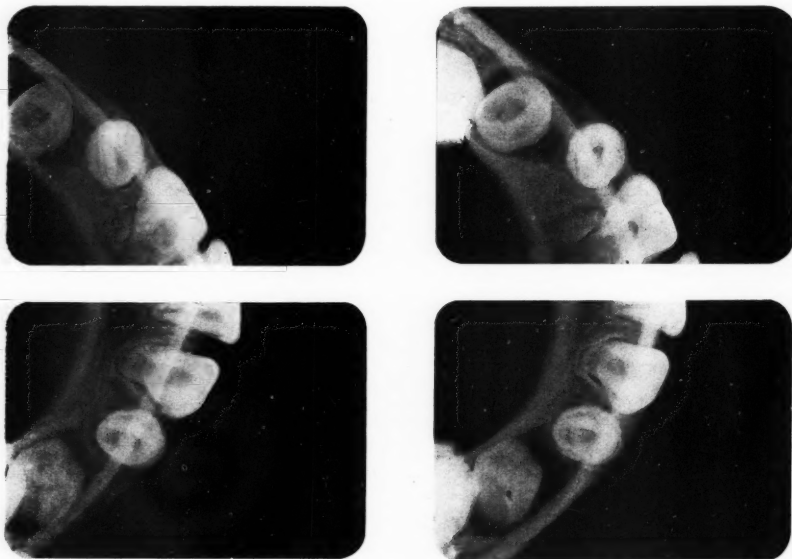


Fig. 6.—Case 2. Occlusal views of mandible showing absence of 33.

total fusion of right lower permanent canine and lateral incisor, and the other an 8-year-old girl with bilateral total fusion of permanent lower canines and lateral incisors.

It is possible that in the two new cases reported the lateral incisors may be geminated with supernumerary teeth. If this were so, it would follow that the permanent canines are absent since they could not be identified by means of X-rays. According to Colyer and Sprawson (1931, b) and Schweitzer (1934), these teeth are very rarely absent, and it is considered that in the present cases gemination has in fact occurred between second incisors and canines of the permanent series. No hereditary factor could be traced in either case.

case reports. Thanks are also due to the Commissioner of Police for photographs taken by the Police Identification Bureau.

REFERENCES

- BENNETT, Sir NORMAN (1931), *The Science and Practice of Dental Surgery*, 2nd ed., Vol. 1, 115. London: Oxford University Press.
 COLYER, J. F., and SPRAWSON, EVELYN (1931, a), *Dental Surgery and Pathology*, 6th ed., 614. London: Longmans Green & Co.
 — — — (1931, b), *Ibid.*, 20.
 SCHWEITZER, G. (1934), *Deutsche Zahn-, Mund- u. Kieferheilk.*, 1, 236.
 TRATMAN, E. K. (1937), *Brit. dent. J.*, 63, 272.
 — — (1939), *Ibid.*, 67, 561.
 — — (1949), *Ibid.*, 86, 271.
 WINKLMAIER, O. (1951), *Dtsch. zahnärztl. Z.* 6, 1026-33; 1075-86.

To Preserve Leather.—To prevent such leather items as dental chair coverings and book bindings from cracking and deteriorating,

wipe the leather with a cloth moistened with glycerin about twice a year. Allow the oil to soak in for a few minutes, then rub leather dry.

NATIONAL HEALTH SERVICE NOTES

The National Health Service (General Dental Services) Amendment Regulations, 1953

THESE regulations amend the National Health Service (General Dental Services) Regulations, 1948, in two respects:—

(1) by providing a procedure for the removal of the name of a dental practitioner from the dental list of an Executive Council, where such practitioner has never provided general dental services during the preceding six months or has ceased for that period to provide such services, and

(2) by amending the list of prescribed drugs which a dental practitioner may supply to or prescribe for persons for whom he is providing general dental services.

The National Health Service (General Dental Services) Fees (Amendment) Regulations, 1953

THESE regulations, which came into effect on August 15, deal with two points. The effect of the first is that, whereas the fee for examination and report is not payable in the case of adult patients more often than at six-monthly intervals, the fee can now be paid three times during the period of pregnancy and three months thereafter.

The second point—revised scales of remuneration for dentists employed at health centres—concerns only those Executive Councils in whose areas health centres have been established at which general dental services are provided, and a letter is being sent to those Councils on the question of assimilation to the new scales of the dentists already employed by them.

The new regulations give Councils discretion

to grant up to three increments above the minimum of the scale when making an appointment in Grade III or Grade II where a dentist's experience justifies this course. The three grades in the health centre service are based on the following broad principles without regard to establishment:

Grade III, dentists with less than 10 years' experience; Grade II, dentists of experience and proved capacity; Grade I, dentists with outstanding experience, capacity and/or qualifications.

The National Health Service (Service Committees and Tribunal) Amendment Regulations, 1953

THESE regulations amend the National Health Service (Service Committees and Tribunal) Regulations, 1948, in two main respects:—

(1) By making provisions for Executive Councils to appoint a small committee of three to deal with complaints made against dental practitioners which relate solely to the fit and suitability of a denture provided for a patient. The new procedure is less formal than the procedure before a dental service committee and is intended to provide a method of conciliation between practitioners and patients in disputes between them.

(2) By making provisions for the investigation of cases where it appears to an Executive Council that there is a prima facie case for considering that a medical practitioner has failed to collect or pay over to the Council charges for drugs and certain appliances which their patients are liable to pay in pursuance of the National Health Service (Charges for Drugs and Appliances) Regulations, 1952.

CENTRAL HEALTH SERVICES COUNCIL REVIEW OF DENTAL SERVICES IN 1952

The dental services in hospitals are described in the Report* as being "generally most inadequate, for patients and staff alike". The Standing Dental Advisory Committee recognized that, because there is so much leeway to be made up, a full service for the

hospital population could not be provided for a long time. They estimated that routine examination of all patients on admission together with treatment where necessary and twice-yearly re-examination and treatment of long-stay patients and staff would require over 1,000 full-time dental practitioners or their equivalent in the hospital service. The Committee put forward some short-term

* Report of the Central Health Services Council for the Year ended 31st December, 1952. H.M. Stationery Office. Price 1s. 3d.

recommendations, which were approved by the Council, which included routine dental examination and treatment of all long-stay patients on admission and at yearly intervals; provision of dental treatment of short-stay patients where required as part of medical care for the relief of pain or other emergency; special arrangements for dental treatment as out-patients of persons with open tuberculosis; limitation of other out-patient treatment to specialist diagnosis and treatment; provision, if possible, of facilities for treatment of nursing and medical staff. These recommendations would require, in addition to specialists, about

400 dentists for general treatment of patients. To improve the administrative organization, the Committee recommended the setting up of regional dental advisory committees and the appointment in every region of an experienced dental officer or adviser (pages 8, 15, and 16).

Describing this as a "valuable study", the Minister adds: "There is room for much development here and, while the full services recommended must, for financial and other reasons, be a matter for the future, I am considering the possibility of introducing an experimental scheme in one hospital region".

SOCIETY NOTES

INSTITUTE OF BRITISH SURGICAL TECHNICIANS (INC.)

As a departure from the usual practice, the May meeting of the Dental Section of the Institute was confined to members only, when at 6.30 p.m. on May 25 a visit was made to the Eastman Dental Hospital.

The party were welcomed in the vestibule by Mr. C. T. Youles, who, as senior technician in charge of production at the hospital, undertook the responsibility of conducting the evening's activities.

It is impossible to particularize in a short report about all the work on view, but mention must be made of the splendid tables exhibiting orthodontic appliances, chrome cobalt castings, and of the exhibit of what may be described as unusual prostheses, included in which was a set of models clearly illustrating a technique for constructing a denture for immediate insertion.

The lay-out and equipment of the laboratory was naturally closely examined and many envious expressions were to be detected among members as they moved around. Proceeding from the laboratory we were conducted over the building and it was apparent at once how extensive is the work at present undertaken at the Hospital.

A lecture will be given by Mr. N. Wild, M.Sc., L.D.S. on "An Approach to Orthodontics", on Tuesday, Oct. 6, at 7.30 p.m., at

the Turner Dental School, Bridge Street, Manchester, 15.

Tickets from Mr. A. Litherland, L.I.B.S.T., 32 Whitebrook Road, Fallowfield, Manchester, 14.

A lecture will be given by Professor H. B. Fenn, F.D.S., D.D.S., on "Anatomical Articulation", on Tuesday, Oct. 20, at 6.30 p.m., at the Eastman Dental Hospital, Gray's Inn Road, London, W.C.1.

Tickets from the Institute, 6, Holborn Viaduct, London, E.C.1. or through members.

COURSES FOR DENTAL TECHNICIANS

EVENING Courses for Dental Technicians in Crown and Bridgework, Full and Partial Dentures, Dental Materials, and Orthodontics will be held commencing in October, 1953. Each course will consist of twelve sessions which will be held fortnightly. The courses will be of an advanced nature and are primarily intended for adult technicians.

In addition, special evening courses will be held in Crown and Bridgework, Partial Dentures, and Orthodontics, which will be limited to ten members and supervised throughout by Specialist Dental Surgeons. These additional courses are intended only for technicians who are actively engaged, or who have had extensive experience, in these subjects.

Further particulars and application forms, which must be returned on or before Sept. 14, 1953, from the Honorary Secretary, Dental Technicians Committee, Eastman Dental Hospital, Gray's Inn Road, London, W.C.1.

BOOK REVIEWS

THE FLUORIDATION OF DOMESTIC WATER SUPPLIES IN NORTH AMERICA AS A MEANS OF CONTROLLING DENTAL CARIES. Report of the United Kingdom Mission, February-April, 1952. London: Her Majesty's Stationery Office. 5s.

This report, published on July 9, which is addressed to the Minister of Health, the Secretary of State for Scotland, the Minister of Housing and Local Government, and the Medical Research Council, is an account of the Mission's visit to the United States and Canada to study the fluoridation of water supplies as a method of reducing the incidence of dental caries.

Membership of Mission: JEAN R. FORREST, L.D.S., R.F.P.S.; J. LONGWELL, D.Sc., F.R.I.C.; H. H. STONES, M.D., M.D.S., F.D.S. R.C.S.; A. M. THOMPSON, B.Sc., M.B., Ch.B.

It was considered necessary to attempt an evaluation of the dental results obtained from the fluoridation of domestic water supplies; to consider possible effects of fluoridation upon the general health of the community; to give attention to possible repercussions on industry; to make a detailed study of the technical processes involved in the fluoridation of water supplies; and to study the researches in progress at the National Institute for Dental Research at Bethesda and at certain University Centres. The teeth of a large number of children were examined by Miss Forrest, who remained in America for an extra period of time to make more detailed dental examinations.

Every assistance was afforded to the Mission by the United States Public Health Service, The National Institute of Dental Research, and the American Dental Association.

Paragraphs 6 to 10 are concerned with the historical background of the association of fluoride in the diet with decreased caries liability, commencing with the observations of Sir James Crichton-Browne in 1892, mentioning all the principal investigations since that date up to the most recent work of Forrest, Parfitt, and Bransby (1951).

The dental effects of fluoridated water supplies is dealt with in paragraphs 11 to 25. The areas visited where studies of dental caries in relation to fluoridation are in progress were: Grand Rapids, Michigan; Newburgh, New York; Brantford, Ontario; Sheboygan, Wisconsin; Marshall, Texas; and Evanston, Illinois. In these areas the fluoride concentration of the drinking water has been raised to between 1.0 and 1.2 p.p.m. by the addition of sodium fluoride, and the studies are limited to schoolchildren between 5 and 16 years of age, mostly to those who have lived continuously in the district from birth. The studies are planned to last ten to fifteen years so that a full assessment may be made of the effect of fluoridation on children who have been exposed to it during antenatal life and childhood. The scope and extent of the studies vary from the effect on caries incidence with clinical dental examinations only, to more elaborate examinations with X rays, lactobacillus counts, general physical examinations, and in one case a parallel pædiatric research programme has been undertaken.

In all studies a steady reduction in caries has been found, which is most marked among children in the younger age groups. In control cities no comparable reduction was observed.

The table on page 24 is one of the statistical tables given in the report (para. 17) and illustrates the reduction of caries obtained.

In all the studies teeth are carefully examined for any sign of dental fluorosis, but only in a few instances was it found; then it occurred as a small white fleck occasionally seen on the cusp of a premolar or molar or incisal edge of an incisor. The striking similarity in results of several independent inquiries leaves little doubt that there has been an important reduction in the incidence of dental caries among younger children as a result of four to six years' fluoridation. Emphasis is laid on the fact that fluoridation is not a "cure" for dental caries, and the need for dental treatment will not decrease. The reduction in dental caries which follows fluoridation will do much to reduce the serious

gap between dental needs and the amount of treatment available.

Paragraphs 26 to 36 deal with possible hazards associated with fluoridation. The majority of scientific opinion is that fluoridation of drinking water in amounts up to one

precautions to be taken in handling chemicals; types of apparatus used, ranging from one serving a population of 735 maintained by the local handyman to one under the control of fully qualified staff where more than 20 million gallons of water are delivered daily to 280,000

STUDY	NO. OF CHILDREN AGED 6 YEARS EXAMINED		DECIDUOUS TEETH. AVERAGE DMF PER 100 CHILDREN		PERMANENT TEETH. AVERAGE DMF PER 100 CHILDREN	
	1945	1951	1945	1951	1945	1951
Grand Rapids	1,789	748	649	373	77	26
Muskegon*	462	310	717	602	81	75
		1950-51		1950-51		1950-51
Newburgh	403	427	571	266	48	11
Kingston*	343	364	532	472	41	40

* Control Areas. Practically free from fluoride.

part per million is safe, but the minority view is that it is not known with any degree of certainty exactly what subtle physiological effects may ensue, and that a number of important questions still remain unanswered.

Several million people in America and elsewhere live in areas where fluorides occur naturally in the water supplies in concentrations of 1 p.p.m. or more and there is no definite evidence that they have suffered any harm to their health. The Mission are of the opinion that no risk to health from the continual consumption of water containing amounts of fluoride equivalent to or greater than that which it is proposed to add to water deficient in fluorine has been demonstrated and that the biological effects of naturally and artificially fluoridated waters are identical.

The possible effects of fluoride intoxication on bone, kidney disease, and cancer are discussed. Effects on industry appear to be negligible.

The term "fluoridation" is used as opposed to fluorination to make it clear that the element fluorine is not used, and that the active agent in the prevention of caries is the fluoride ion.

The four compounds which have been used so far are: sodium fluoride, sodium silicofluoride, hydro-fluosilicic acid, and (one instance only) hydrofluoric acid. The use of the last-named is not recommended. Paragraphs 37 to 48 deal with methods of application;

people; and cost, which in the case of Detroit is 3 cents *per capita* per annum.

The final paragraphs, 52 to 58, contain a summary and conclusions, which together with the recommendations, are reproduced below in full.

Summary and Conclusions.—

52. "Epidemiological studies in America have demonstrated beyond doubt that among children and adults who have been born and brought up in areas where the drinking water contains fluoride at a level of 1 p.p.m. or more, there is much less dental caries than in areas where the water is free from fluoride. Compared with areas where the drinking water contains little or no fluoride, there is about 60 per cent less dental caries among children aged 12-14 years and about six times as many children have teeth which are free from caries (18 to 29 per cent compared to about 4 per cent). A few studies among adults, both in England and the United States, show that the effect of fluoride persists at least up to about 40 years of age.

53. "In recent years many North American communities whose water supplies contained little or no fluoride have added fluoride compounds to their water. In certain of these communities the dental effects of 'fluoridation' have been carefully studied.

54. "In our opinion the evidence is conclusive that among children in fluoridation areas

there is a reduction in the incidence of dental caries to a level comparable with that experienced where fluoride occurs naturally in the water. To date, a reduction of this extent has been demonstrated only among children up to 6 years of age, because no fluoridation scheme has been in progress for more than 7 years. Data relating to older groups are as yet insufficient to warrant firm conclusions.

55. "There is nothing to suggest that a water containing fluoride, naturally derived, has properties different from those of a water to which fluoride has been added. At the concentration of fluoride used, about 1.0 p.p.m., it is the fluoride ion that is operative and the nature of the salt used is of secondary importance.

"We consider that an artificially fluoridated water is similar in its action to one containing naturally derived fluoride. There is therefore sufficient evidence to indicate that the benefits derived by young children will accompany them into adult life. It is realized that time alone can demonstrate the truth of this contention.

56. "Doubt has been expressed about the risk of mottled enamel. It has been stated that 10 per cent of the children drinking fluoridated water may develop very mild mottling of the teeth. This in our opinion is not a hazard. We observed that when mottling occurs it amounts only to an occasional white fleck in the enamel and is so slight that it cannot be recognized without expert examination. The appearance of the teeth is excellent.

57. "We have found no scientific evidence that there is any danger to health from the continued consumption of water containing fluoride in low concentration. In the areas where naturally occurring fluorides are present at a level of 1.0 p.p.m., mortality statistics do not indicate any hazard due to fluorides and medical experience has not produced any evidence of increased morbidity. Many suggest that certain ill-effects may nevertheless occur. We can only comment that the proving of a negative is extremely difficult. Meanwhile, we are impressed by the fact that millions of people are living in ordinary good health on waters containing fluorides at levels of 1 p.p.m.

or more. We could not find any evidence that fluoridated water had an adverse effect on industrial processes.

"The mechanical addition of fluoride to a water supply at any desired level presents few difficulties. With a correctly designed plant and proper controls there is no danger of adding a toxic overdose of fluoride.

58. "Methods of administering fluorides in which the individual can exercise a choice are at present few and positive control can be exercised only in the case of topical application of a solution of sodium fluoride. This method has not given the same degree of protection against dental caries as the fluoridation of water, nor has its effect been as lasting. Another method whereby tablets of sodium fluoride are dissolved in the drinking water for an individual or family may have some use in regions lacking a piped supply but its careless use may be ineffectual and even risky. In our opinion fluoridation of water supplies is preferable to all other methods."

Recommendations.—

1. "It follows from our conclusions that we consider fluoridation to be a useful means of reducing the incidence of dental caries in North America. It is reasonable to assume that it would also be useful in this country. We therefore recommend that its adoption in this country should be considered. However, certain investigations are desirable before the general adoption of fluoridation.

2. "In our opinion it would be advisable in the first instance to add fluoride to the water supplies of some selected communities. These preliminary fluoridation projects should be regarded as study centres and include full medical and dental examination at all ages.

"Before these fluoridation studies can be started it is necessary:—

- (a) "to obtain baseline information on the incidence of dental caries in children and adults in the selected communities, and if possible in comparable communities that can be used as controls.
- (b) "to assess the required dose to be added to water supplies in this

country. The best way of determining the present level of ingestion of fluoride is to make a survey of fluoride excretion in the urine of representative children and adults of all age groups throughout the country.

- (c) "to make sure that adequate supplies of fluorides in the most suitable form are available.
- (d) "to develop the machinery necessary for the controlled addition of fluorides to water supplies under satisfactory conditions with adequate safeguards against errors in dosage and any undue exposure of the operating personnel to the materials handled.

3. "In spite of the fact that the evidence of harmlessness is so strong as to be almost conclusive, research into the effects on health and disease of the continued use of waters containing low levels of fluoride should be encouraged.

4. "About 10 per cent of the population of this country lack a piped water supply but many in this category obtain water from privately owned wells, boreholes, and springs. Simple methods for the addition of fluorides to such supplies serving small communities should be investigated."

There are fifteen appendices dealing in detail with the various dental, medical, and technical aspects of the fluoridation of water supplies. There is also an extensive bibliography.

D. F. S.

DENTAL ANATOMY. Including Anatomy of the Head and Neck. By MOSES DIAMOND, D.D.S., Late Professor of Dental Anatomy, Columbia University College of Physicians and Surgeons and School of Dental and Oral Surgery. Third edition. $7\frac{1}{2} \times 10$ in. Pp. 471 + xiv, with 172 illustrations. 1952. New York: The Macmillan Company. 112s. 6d.

THE third edition of this text-book, which owing to the tragic death of Dr. Moses Diamond was steered through the final stages of publication by his son, is very different from the earlier ones. Only some of the illustrations and parts of the text enable its connexion with the earlier editions to be

traced. Chapters devoted to tooth development and eruption, another giving a simple account of the structure of dental tissues, and a section on growth of the skull have been added. The account of the anatomy of the head and neck is now illustrated by an atlas of many plates showing dissections and sections through the head at different levels. Each chapter is generously illustrated and has a well-chosen bibliography of works appropriate for further reading. The reproductions of radiographs of teeth, *Figs.* 148 to 155, which purport to show the outlines of the pulp cavities, are so indistinct that they might well have been omitted.

Much of the book is excellent but, regarded from the point of view of the needs of undergraduates in British schools, some of the sections are superficial and inadequate. This applies particularly to the sections on histology and topographical anatomy of the head and neck, which would have to be generously supplemented.

The description of the morphology of human teeth and of occlusion is excellent and reflects the author's great experience and erudition. A useful account is included of the technique of tooth carving, which as a means of teaching tooth morphology was strongly supported by Diamond; in fact, he was one of the pioneers of this art.

The account of the growth of the skull and jaws, which bears the mark of the author's own original work, is one of the best features of the book, although many might prefer more eclectic treatment.

Wherever possible throughout the book attention is drawn to clinical aspects of the subject, perhaps to an excessive extent. Some of these digressions into pathology are certainly ill-chosen; for instance, it is suggested that spacing of the permanent incisor teeth "may denote an acromegalic tendency". A whole chapter is devoted to variations and anomalies of the dentition and includes such diverse conditions as supernumerary teeth, enamel, hypoplasia, and abrasion.

Those interested in etymology will note that the term "gammate" employed for double teeth in the earlier editions and which

appears to have been coined by Diamond from the Greek *gamos*, meaning "marriage" or "joined", as in "polygamous" and "gamete", has been altered without comment in the new edition to "gemmate", which means literally "having buds" and is a term commonly used in botany.

This book has a good deal to commend it. Its printing, paper, and binding are of very high quality.

A. E. W. M.

GINGIVITIS IN MILITARY PERSONNEL WITH SPECIAL REFERENCE TO ULCERO-MEMBRANOUS GINGIVITIS. By J. J. PINDBORG. Reprinted from *Odontologisk Tidsskrift*, 1951, 59, No. 6. 6½ × 8½ in. Pp. 96. 1952. Copenhagen: C. A. Reitzel.

THIS is a report of an investigation primarily concerned with an attempt thoroughly to elucidate and describe cases of gingivitis occurring in young males who were called up for services in the Danish Army and Navy. It contains an extremely valuable summary of world literature relating to the incidence of gingivitis in the civilian population. Methods of examination and recording which have been employed in these investigations are discussed. In the author's investigation it is interesting to note that he used a punch card in order easily to record and rapidly to analyse his findings.

The investigation was carried out on 9659 individuals, of whom the majority were sailors. Differentiation was made between normal

gingiva, simple chronic marginal gingivitis, Vincent's ulcerative gingivitis, and other forms of gingivitis; 26.1 per cent were considered to be normal, 66.0 per cent as having chronic marginal gingivitis, and 6.9 per cent Vincent's disease.

It is concluded that Vincent's disease is far more prevalent during the autumn months. Support is found for the theory that inflammatory lesions of the gingivæ are caused to a considerable extent by localized stagnation, as these were found to be more prevalent amongst those engaged in occupations demanding a lower standard of education and also in those who had not received dental education as schoolchildren. An increase in the frequency of gingivitis was found to be related to greater deposits of calculus, and the author goes on to show that tobacco plays a part in the deposition of calculus. Tobacco consumption is also held to be a factor in the occurrence of Vincent's disease. Support was not found for the theory that occlusal derangement may be correlated to the incidence of gingivitis and that Vincent's disease was particularly prone to commence in association with erupting third molars.

The author considers that control of local aetiological factors will go far towards preventing the spread of Vincent's disease. He did not find any adequate evidence to show that vitamin deficiency is responsible for the increased incidence of this disease which he observed, particularly after transfer to camps or ships.

W. B. W.

ABSTRACTS from Other Journals

The Cuticles, Epithelial Attachment, and Reattachment in Incisors of the Rhesus Monkey

The epithelial attachment was studied in the jaws of normal monkeys after decalcification by Sognnaes' method for three days in the refrigerator, followed by Brain's method for two days. Embedding was in paraffin and cutting at 10 µ. It was observed that the primary cuticle appeared as a limiting membrane, having the thickness of a cell membrane of an epithelial cell. Prolongations entered the enamel matrix at regular intervals

and appeared to be the remains of the prism sheaths. Between the prolongations and radiating from the primary cuticle was a substance with a fibrillar nature. The enamel epithelium consisted of several layers of cells, and extended the entire length of the enamel, being continuous with the oral epithelium at the gingival margin. Where the gingiva was pulled away epithelial cells remained attached to the primary cuticle. No cellular extensions of the secondary cuticle into the primary cuticle or the enamel were observed.

Three or more layers of epithelial cells remained adherent to the primary cuticle and keratinized. The gingival crevice was formed by an intra-epithelial split in the enamel epithelium. Ballooning and degenerative changes were observed in the cells at the bottom of the crevice.

In other monkeys the maxillary incisors were extracted, the pulp removed, the teeth placed in 10 per cent formalin for 10 minutes, all adhering material was carefully burred away from the coronal two-thirds of the labial aspect, and the teeth replanted. After an unstated period of time the animals were sacrificed and sections prepared in the same manner as in the normal teeth. It was shown that the enamel epithelium closely adhered to the enamel and that toward the cemento-enamel junction the relation of the enamel epithelium could not be distinguished from that in the normal. Re-attachment was found to be much better in mouths which were clean than in those where discoloration, calculus, and periodontal disturbances existed.—
BUTCHER, E. O. (1953), *Brit. dent. J.*, 94, 197.

The Influence of the Ca/P Ratio on the Classification and Treatment of Bone Resorption in Periodontal Disease

A classification of alveolar resorption based on calcium and phosphorus ratio in the diet has been presented. The order in which the classification is presented promises favourable results, the first offering the best results. In planning treatment, nutrition should receive primary consideration as it should include a good calcium and phosphorus intake in the same ratio as that existing in the bone. It is recommended that 1 g. of calcium to 0.8 g. of phosphorus should be the daily intake; if one is inadequate the other is not utilized properly, even though it is given in sufficient quantity.

The supply of calcium and phosphorus for the use of the body should be by means of foods rather than the use of salts. Although salts produce a quick rise in the deficient elements, their retention is poorer. To maintain a physiological equilibrium minerals are required in the proper proportions, and foods

contain the essentials the body requires, including the minerals.

It has been known that bone resorption is a symptom of a metabolic disturbance that has been going on over a period of many years. As the results of the administration of these minerals are not rapid, an extended period of recovery should be expected, even though a correct diagnosis has been made and the full co-operation of the patient secured. Although the original level of the alveolar height can never be restored, the recovery consists of a remission in the loss of alveolar height and in some cases filling in of pockets with bone.—
WEINBERGER, A. (1953), *Oral Surg.*, 6, 295.

The Role of Bacteria in Periodontal Disease

Looking at the literature published in connexion with bacteria in periodontal disease, no clear-cut conclusions can be reached, but several points of interest can be brought out.

There is no proof that direct infection of the periodontal tissue ever occurs or that periodontal disease is due to primary infection by bacteria, although bacteria are the cause of aggravating the severity or extending the scope of the periodontal infection. It is possible for certain organisms to proliferate so rapidly as to suggest a specific bacterial effect, although there is evidence that the spirochaetal types are of primary importance in tissue infection.

There is, however, no invasion of tissue in marginal gingivitis, as the tissue reactions are brought about by the breakdown products of bacteria on the external surface of the gum. In these cases the nature of the agents concerned is not known.

It is also possible for the bacteria to produce their influence on the inflammation of the periodontal membrane without actually invading it. The mechanism by which any tissue-destructive effect is brought about is not understood, and there is no reason to believe that any one type of organism is more important than another.

For those interested in either interdental disease or basic problems of the relationship between normal bacterial populations of the tissues, it offers a fertile field.—BIBBY, B. G. (1953), *Oral Surg.*, 6, 318.

OFFICIAL SUPPLEMENT OF THE SURGICAL INSTRUMENT MANUFACTURERS' ASSOCIATION (INC.)

DENTAL LABORATORIES SECTION

Chairman : E. G. EMMETT, F.I.B.S.T.

Administrative Offices : 6, HOLBORN VIADUCT, LONDON, E.C.1

Telephone: CITY 6031

Vol. III, No. 6

September, 1953

Editorial Committee: D. M. BEAUCHAMP; H. J. POTTER, F.I.B.S.T.

EDITORIAL

A SERIOUS loss of time and material is being experienced by our members owing to the failure of sets of plastic teeth to match the shade guides provided, with the additional difficulty of discrepancies between the shade guides of the same make themselves.

A dental surgeon will specify a shade of a certain make of tooth for his case; a set of teeth of the same carded shade will be set up and sent for trial; the case may then be returned with a complaint that the teeth are not true to the shade asked for; apart from the nuisance of procuring another set to satisfy the dentist, the teeth will probably have been ground, and the wax mount thrown away, thus rendering the set useless for the laboratory stock except as odd teeth, causing loss of time to patient and dentist as they make another appointment, and waste of materials and money to the technician.

It would appear at first sight to be a matter for the attention of the British Standards Institution committee to establish the degree of colour variation permissible, but it is not so simple as this, for we shall always have some dentists who are not satisfied with a fairly good match.

One of the great advantages of plastic teeth is the readiness with which colour variations may be introduced into the same denture: progressive dentists and technicians have long recognized that irregularity of colour of anterior teeth may be as pleasing and useful

an art as the irregularity of arrangement, besides conforming to the natural condition in which colour variations exist in the adult dentition, which is continually subject to change either by ageing, or by restoration and attention by the dentist. We are therefore tempted to ask if colour fidelity is really important.

In former times we enjoyed the advantage of the use of porcelain teeth of unvarying colour exactness, a fine achievement by the manufacturers whose praise was then rarely sung: insistence by the dental profession on like colour standards with plastic teeth determined in a scientific way may become embarrassing for the manufacturers, for are their matchings to bear examination with a tintometer, when such an instrument becomes suitably developed for artificial teeth, or be subjected only to the dentist's eye in an artistic way, which is the prevailing test?

We are assured that the manufacturers are aware of the trouble and inconvenience caused, but in practice the technician is expected to accept responsibility for any and every fault; ours therefore is the greater irritation, for we are blamed, and bear the material loss.

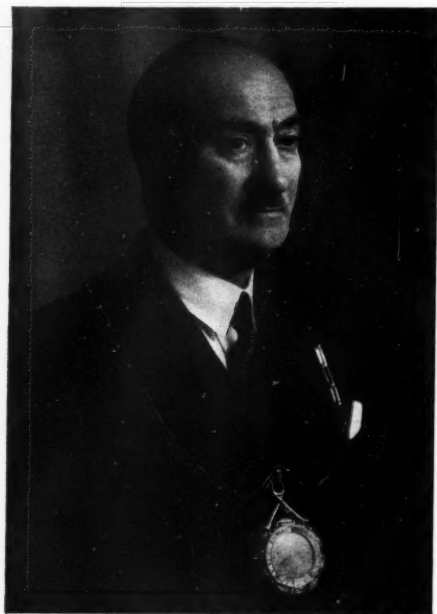
The purchaser of a television receiver will probably find in his contract a note that the manufacturer of the receiver is not responsible for valves or parts not made by himself, but that any complaint regarding such components must be addressed to the makers. This then

is the businesslike line for us to take: we mount the teeth asked for to the best of our ability, supply the empty card to the dentist as evidence, and if he has any complaint it must be addressed to the manufacturer, for the laboratory ought not any longer to be held responsible, and put to loss, on account of inaccuracies of component parts which some other body has made.

Believing that sometimes these complaints are unnecessary, but knowing that sometimes they are justified, we shall be glad to receive the observations of both the profession and manufacturers, for only by resolving such difficulties shall we as craftsmen and businessmen be encouraged to give of our best and thus work in harmony with those who supply us, and those we desire to serve.

DOYEN OF MASTER DENTAL TECHNICIANS

Mr. R. R. Marshall, Chairman of our West of Scotland branch, must surely be the oldest practising member of S.I.M.A. A consideration of the following brief biography will make



Mr. R. R. Marshall, wearing the President's chain of the St. Vincent Bowling Club, Glasgow.

us all proud to be associated with him in our craft.

Born in Stirling in 1887, at 14 years of age he commenced a seven years' apprenticeship with Messrs. Platt and Common, dental

surgeons of that town. The wages in those days would shake the modern youngsters, starting as they did at two shillings and sixpence per week, and rising by yearly increases of one shilling a week to seven shillings and sixpence in the fifth year, ten shillings in the sixth, and finally twenty-five in the seventh year. This was for handling gold work, and all the processes then in use.

Completing his apprenticeship in 1908, he joined Mr. E. J. Wallis, a dental surgeon of Alloa, and remained there in charge of the workshop until 1912. Enthusiasm for fresh experiences urged him to move south to the Welsh principality, and in Swansea he commenced practice on his own account as a dentist, being at liberty to do this, nine years prior to the Dentist Act 1921.

Outbreak of the 1914 war found him joining the army to commence a service of five years, three and a half of which were spent overseas. He was commissioned in the Highland Light Infantry on July 1, 1915, and later, attaining the rank of captain, commanded a trench mortar battery for two and a half years, earning the distinction of a mention in despatches 1916, and being awarded the Military Cross in 1917.

Settling down in Glasgow in 1920 he took charge of the workshop of Dr. J. D. Brownlie, M.B., Ch.B., L.D.S., and remained until 1923.

A long term was now to commence and he opened a dental laboratory at 44, Bentinck Street, Glasgow, and at this same address he is still carrying on—thirty years later.

At the outbreak of the second world war he joined the Civil Defence (first-aid post), and

after the formation of the Home Guard he transferred to the Royal Artillery (anti-aircraft) which had his continual service for the remaining three years.

About this time the Glasgow and West of Scotland Dental Laboratories Association was formed with Mr. Marshall as its first chairman, and after its incorporation within S.I.M.A. he did notable work in the branch; in 1952 he assumed the chairmanship once more, an

office which he still holds. Not neglecting social activities, he was the president of his bowling club in 1949.

We in the West of Scotland branch owe much to the steady support and constant attendance of our colleague, and as craftsmen have benefited frequently from his kindly help and advice, and hope he may long be spared to us.

J. STUART FOUNTAIN.

THE BELGIAN LABORATORY STORY

The struggle for recognition by the dental profession is an integral part of the laboratory picture in a number of countries, and Belgium is no exception. M. Georges Hutsebaut, of Brussels, for several years general secretary of the Union National des Laboratoires de Prothèse Dentaire, and who was present with some of his countrymen at the recent Paris meetings, tells how Belgian technicians have brought about a raising of standards and levels and discusses the problems they faced in doing so.

June 1, 1934, saw the beginning of a change in the dental laboratory situation in Belgium. It came with the issuing of a royal decree regulating the practice of dentistry. Prior to that date independent dental laboratories were relatively few in number, and practised dentistry on their own account. The majority of dental technicians were not employed in these laboratories, but were employed either by doctors and dentists in their laboratories, or established by them for their profit and working directly for the public.

When the royal decree was issued, members of this latter group were faced with the problem of renouncing their independence, a course repugnant to them, or of working only for their practising clients. The result was a confused situation, and the establishment of a number of new laboratories.

Certain laboratory men refused to conform to the new regulations, and the doctors and dentists considered all the mechanical dentists as spiteful and dishonest rivals, but when it came to sending their work to the laboratories,

they made little distinction between the illegal laboratories, and the legal ones normally doing their business.

On the other hand, the union of professional mechanics continued to claim the right for its members, established before 1934, to make dentures directly for the public, or be permitted to undergo an examination to practise dentistry, while the most powerful society of dentists and stomatologists, the U.D.S., was constantly in conflict with the union, and as a result mistrusted all mechanic-dentists.

No association of laboratories existed then, they were individual units and the weakness of this position soon showed up. The laboratory men desired to organize in order to do something about the mistrust, the criticism, and the sundry attacks to which they were subjected by the practitioners. It was not until 1940, however, that leaders in the laboratory field took the initiative and formed the Union Nationale des Laboratoires de Prothèse Dentaire, which met with a quick success because it answered a need felt by everyone concerned.

The results of the union were, first, the recognition of an official price set-up, actually taken into consideration by civil and military hospitals; second, the establishment of regular conferences with the U.D.S. which brought about on the part of the profession a clear distinction between the legal and the illegal laboratories; and third, the creation of commissions, the establishment of a programme of apprenticeships, and the commencement of

courses of study by the union from 1946, until the decree of the Regent relative to the formation of a professional organization became effective in August, 1947.

In the meantime the economic situation of the dental laboratories was gravely menaced by the appearance of cheap clinics having their own prosthetic workers: these clinics furnished work at the price paid by the welfare societies in accordance with an official tariff.

Since 1944 all salaried workers and wage earners in Belgium have found themselves under obligation to be either "mutuellists" (their employers and they together pay 25 per cent of their salaries as an obligatory assessment) or members of the clinics; they thus constituted a large clientele and everything was done for the welfare clinics. Drained towards these clinics, the clientele for the private dental surgeons diminished, and consequently the work for the laboratories slackened.

A reaction quickly set in; the dentists and stomatologists as well as all the doctors obtained an increase in the welfare tariff and brought about freedom of choice for the "mutuellists" in selecting their employers. In January, 1948, a ministerial circular raised the tariffs more than double for dental prosthetics and the laboratories were not slow to take advantage of it, although their doing so only impeded an accord between the dentists and the "mutuellists", but that is another story.

We have yet many things which must be realized within the shortest possible time: as

are all industries in Belgium, we are overburdened with heavy taxes; although the Belgian constitution declares that everyone is equal before the law, it means nothing to the treasury department; over here salaried workers and wage earners pay relatively little tax on their incomes, the professions pay a good deal more, and the employers, small or large, are nearly smothered by taxes.

There are those who are concerned with the professional level of the prosthetic technicians who have never foreseen the necessity of courses and examinations, with the result that the value of workers and quality of work are greatly varied. The freedom permitted to anyone to establish a dental laboratory without having to prove his knowledge is dangerous, and the number of incompetent laboratories is becoming larger. Our union is busy with that problem, struggling to prevent anyone becoming an employer until he is capable of it.

We also hope to bring about a recognition of our usefulness, and to gain protection from the minister of public health. There in brief is our immediate programme, it is only a glance at what has been done and what remains to be done, but it gives a summary of the dental laboratory position in Belgium.

Postscript: Emile Leenen, the President, Jean Oosterbosch, the Vice-president (whose pictures appeared in the March Supplement), and Georges Hutsebaut, the Secretary, should be honoured by all for their devotion to the interests of their colleagues in one of the world's most densely populated countries.

NEWS FROM HEAD OFFICE

Termination of Apprenticeship Indentures.—A number of cases concerning the dismissal of apprentices have been referred to the Disputes Committee of the N.J.C. for arbitration and members are strongly advised to consult the Association before taking steps to terminate the indentures of any of their apprentices.

Factory Act.—Members are reminded that dental laboratories are subject to inspection under the Factory Act and that they should

post on their premises the appropriate regulations, i.e., Form 1, Abstract for Factories—October, 1948—which can be obtained from H.M. Stationery Office, York House, Kingsway, W.C.2., price 6d.

Insurance.—The Dentists' Insurance Association, 199, Piccadilly, W.1, have devised a scheme of insurance covering employers in respect of payment of technicians or apprentices during sickness. The benefits covered

will be those required under the N.J.C. sick pay regulations and the premium will be 15s. per annum per £1 of maximum weekly wage for each technician or apprentice, an odd 10s. or fraction thereof being charged at 7s. 6d. Further details may be obtained from the Dentists' Insurance Association.

Regional Dental Laboratories.—It was brought to the notice of S.I.M.A. that the establishment of a Regional Dental Laboratory in Nottingham was contemplated by the Sheffield Regional Hospital Board and representations have been made to the effect that there are trade laboratories in Nottingham

and other towns in the area which have adequate facilities for carrying out the dental prosthetic work of the hospitals in the region.

Presentation to Mr. A. J. Grant.—In recognition of Mr. A. J. Grant's many years of service on the Main Committee and as Vice-Chairman of the Dental Laboratories Section, a presentation will be made to him on behalf of the members at the Annual Dinner and Dance on Feb. 12 next as a token of their appreciation.

Change of Address.—Mr. T. J. Hickey has moved to the following address: 56, Lower Mount Street, Merrion Square, Dublin.

BRANCH NEWS

A JOINT meeting of the South Wales and Monmouthshire, and the West of England branches took place on Saturday, June 27, 1953, at Cardiff under the chairmanship of Mr. E. T. Back (chairman, South Wales and Monmouthshire Branch), when the guest speakers were:—

C. Spiridion, Esq., L.D.S., R.C.S., President, B.D.A.

J. R. K. Russell, Esq., B.Sc., Chairman, National Union of Manufacturers, South Wales Branch.

E. G. Emmett, Esq., F.I.B.S.T., National President.

A very enthusiastic welcome was given to the members of the West of England branch who had travelled so far to be present at this first united meeting.

Mr. Spiridion gave a very interesting talk on problems that had been faced and were still being faced in connexion with the education of student apprentices. He thanked S.I.M.A. for the valuable help which they have always given in this connexion. Mr. Spiridion, however, rather felt that there was a need for more all round men rather than specialists, and in his opinion more practical work should be included in the courses. Another interesting point which Mr. Spiridion put forward was the value of refresher courses for technicians of all ages. He then went on to deal with many points of immediate and

absorbing interest which gave members much food for thought.

Mr. Emmett, in his usual lucid manner, dealt with topics of vital interest to all members, covering his very happy memories of meetings which he had attended in other parts of the country and expressing appreciation of the enthusiasm of those who travel many miles to conjoint and branch meetings. He also dealt with the functions of N.J.C., discussed the negotiations for wages during sickness, payment for holidays, grading of technicians and indentures; and described how the problems in other countries with which we had recently been in contact—the U.S.A., France, and the Middle East—were very similar to those in our own land.

He stressed the need for each member to anticipate his staffing difficulties and in the early stages seek association guidance so that should the difficulty lead to dispute, headquarters may have a full grasp of the situation from its very beginning. It is the whole-hearted desire of the association to help members but it must be appreciated that this function may only be fulfilled when essential information is received at an early date.

Mr. Emmett spoke of the many members in the association who work so hard to bring success to association activities and put forward the suggestion that each branch in turn should organize a summer conference.

The main committee felt that this matter should receive early consideration, it taking at least a year to arrange such events.

Mr. Russell reaffirmed many of Mr. Emmett's points, including the important one that numbers matter when dealing with Whitehall. He stressed the need for unity and strength in all negotiations, backed up by the support of each member. He went on to say that it was the responsibility of each member to maintain a high standard of production, for it was each person's contribution in his own laboratory that helped to improve the whole level of the profession. It was imperative to realize that the integrity of the individuals gave the necessary impetus to the efforts at other levels being made for their benefit.

He assured the meeting that the services of the N.U.M. would always be available to S.I.M.A. where it was felt that extra support and the backing of the N.U.M. would help bring negotiations to a satisfactory conclusion.

Votes of thanks to the speakers and those who had arranged the meeting were given by

Mr. Tilbury, Chairman of the South-West Branch, and Mr. Merrifield of the South Wales Branch.

In conclusion, Mr. Russell had the most pleasant task of the meeting when he presented Mr. Emmett with a small token of appreciation from the members of the South Wales branch whose desire it was to recognize the first official visit of the national president to Wales.

In responding, Mr. Emmett thanked the members and registered his appreciation of a most enjoyable and helpful meeting, coupling with his remarks his thanks to the chairman, Mr. E. T. Back, who had so ably conducted the meeting.

S.I.M.A. DIARY

South Wales and Monmouthshire Branch (Hon. Sec., Raymond Mather).—Next two meetings to be held at the Royal Hotel, Cardiff, Thursdays, Sept. 3 and Oct. 1, at 7.30 p.m.

PROPERTIES OF SELF-CURING DENTURE BASE RESINS

THE widespread use of methyl methacrylate resins and their co-polymers for denture bases, artificial teeth, and filling materials, has given this group of resins a unique place in dentistry. The recent introduction of a new group of these resins, which polymerize at room temperature, has created widespread interest in their possible use as a denture base material.

In a recent investigation at the National Bureau of Standards, a comparison was made between the properties and the clinical behaviour of the self-curing resins and the heat-curing resins. This investigation revealed that the solubility and water-sorption values of the two types of resin were similar. The strength of the self-curing resins was approximately 20 per cent lower; they were not so completely polymerized, and their colour stability was relatively poor.

Their plasticity, though initially satisfactory, decreases rapidly because of the accelerated rate of polymerization at room temperature. The available working time is consequently

shortened, and greater care in packing and trial-packing the flask is required.

One of the most serious difficulties observed was the failure of plastic teeth to form an adequate bond with these resins.

Although the self-curing resins are inferior in several respects to the heat-curing type, there has been a definite improvement in those at present available over those initially introduced on the market. A number of dentures made of these resins are being observed clinically, and to date they appear to be giving satisfactory service. Although these materials have been under observation for only a short period of time, they will—if they continue to prove satisfactory—offer real advantages over the heat-cured resins. The curing procedure required is shorter and simpler; no heating or temperature regulating equipment is needed, and the amount of strain introduced into the resin during the curing process should be less.—CAUL, H. J., STANFORD, J. W., and SERIO, A. F. (1952), *J. Amer. dent. Ass.*, 44, 295.